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The National Fruit Magazine of America

# AMERICAN FRUIT GROWER MAGAZINE

Established 1889

Published monthly at 53 West Jackson Blvd., Chicago, Ill.

(Title Registered in United States Patent Office)

Member of the Audit Bureau of Circulations

Entered as second-class matter Oct. 17, 1917, at Post Office at Chicago, Ill., under the Act of March 3, 1879

HARRY W. WALKER, General Manager

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Advertising Rates: \$2.00 an Agate Line Flat, or \$28.00 per inch. Classified, 15c a Word.

Subscription: 1 year, 50c; 3 years, \$1; Foreign: 1 year, \$1

Vol. XLV.

DECEMBER, 1925.

No. 12.

## Citrus Culture in the Rio Grande Valley

By Louis H. Alsmeyer

IN THINKING of the citrus fruit industry in the Lower Rio Grande Valley of Texas, the first thing to inform ourselves about is as to the location of this favored section of Texas. "The Valley," as it is commonly called, is composed of Cameron, Hidalgo, Willacy and Starr counties, and is located in the most southern part of the mainland of the United States, and is bordered on the south by the Rio Grande River.

### Development of the Citrus Industry in the Valley

The development of the valley began with the advent of the railroad about 21 years ago. Then a few years later the development of extensive irrigation systems and land holdings began. Some few citrus trees were planted at that time and a few years later, but most of these were for home use and very few of them for orchards. Many of the first plantings were killed in the freeze of 1911, and others were killed in the freezes during December, 1917, and January, 1918. Thus, citrus fruit growing did not reach a commercial stage until about seven years ago, when the results of the cultivation of the mature orchards became generally known.

Since then, the citrus fruit industry has grown by leaps and bounds, and the indications are that "The Valley" will soon occupy a place in the citrus fruit world of equal rank with that of California and Florida.

Some idea may be had of the extensiveness of this industry when we learn that up to June 1, 1921, there had been about 1,000,000 citrus trees set out in orchards. The following year, there were about 300,000 more trees set out, and the plantings have increased each year. There are now about 2,000,000 citrus trees in the Lower Rio Grande Valley of Texas.

During the 1920 and 1921 seasons, the total shipments from the valley were approximately seven cars of fruit. The following year there were 38 cars. The total shipments in 1922-23 were 167 cars. A year later there were 268 cars, and the past year 512 cars were shipped out.

Sixty per cent of all the citrus trees in the valley are grapefruit; 35 per cent are oranges; and the remainder are lemons, limes and kumquats. During the past few years, there has been an increased demand for oranges, and the indications are that in a few years there will be an equal planting of oranges and grapefruit. Over one-half of the citrus trees planted in the valley have been valley grown, and the remainder have been shipped in from California and Florida.

### Citrus Varieties

The leading variety of grapefruit, or pomelo, as it is properly called, is the Marsh Seedless. This bears a medium-sized fruit that is very juicy, has few seeds, and is of excellent quality and flavor. The Duncan is perhaps the next variety in importance, but it is rather large and often misshapen.

The Improved Conner Prolific is a variety which is fast gaining popularity. The fruit is of uniform size.

The trees yield abundantly and mature early.

The Foster, a pink-fleshed variety, has also been planted, but it is doubtful if it will ever assume a very large place in the commercial orchard, as it has an insipid flavor and seems only to meet a special demand for banquets, due to its attractive color.

dustry, a large number of Parson Brown oranges were planted. It is the earliest orange that we have and is still very popular.

The Dancy is the leading variety of the tangerines or kid glove oranges. This orange peels very easily and the segments separate without the loss of any juice.



A five-year-old grapefruit orchard near Harlingen, Tex.

The Valencia is the leading variety of oranges in the valley. This variety is a good shipper, it yields abundantly, and although it is considered a late variety, it ripens before the main California crop. The Pineapple is also a popular orange and ripens somewhat earlier than the Valencia. This is a most excellent orange and is being planted extensively.

In the early development of the in-

The leading varieties of lemons are the Eureka and the Villa Franka. Lemons are picked by size and then artificially ripened by sweating. There are two of these ripening plants in the valley. Both are located at Mission, Tex.

There are many other varieties of citrus fruits, and although we are hunting for a more desirable variety of oranges, we are trying to keep down

the planting of large numbers of different varieties. We want fewer varieties and better fruit.

### Rootstocks

All the trees are budded on sour orange rootstocks. Experiments have been made with the various types of rootstock, but the sour orange root has proven to be the best. Growers are insisting that only this type be used by the nurserymen.

### Bud Selection

In the past there has been such a rush for trees that the nurserymen have been unable to supply the demand. Thus not enough attention was paid to bud selection, proper rootstocks and culling out of poor trees. Many cull trees were shipped in from other states, and thus growers began to be afraid of imported trees. They have now found out that good and bad trees are grown in every section and they are exercising more care in selecting the source of their trees.

Experiments have proven that the improvement of high bearing trees and of good quality fruit of the proper type can be made through bud selection and that the propagation of trees of this type can be made only through bud selection. This is especially true with citrus fruit.

The buds for use in the nursery should be obtained from fruit bearing wood. Each time bud wood is obtained from a tree, fruit will also have to be cut off and wasted. The fruit on this particular branch should be of the type desired for propagation, and all fruit borne on the tree should be uniform in character and appearance so as to insure the minimum amount of off-type trees. Only trees of which a record has been kept for several years, so as to be certain that they are uniform and heavy bearers of fruit of the proper type and quality, should be used. In addition to this, the trees must have been used as a source of bud wood during previous years and a study made as to the tree's ability to transmit its good qualities to its offspring through its buds. These are very important features in producing bearing trees. These steps are rather expensive but they justify the expense several times over.

There is as much difference between citrus trees produced in the ordinary manner, and those produced by methods in which bud selection is used, as there is between the Arkansas razor back hog and a registered Poland China. This is another phase of the game to which valley growers should devote more attention, and they should buy only the best trees if they would compete with other citrus fruit producing sections.

### Irrigation

The majority of the citrus fruit is grown under irrigation. But the success which the farmers around Raymondville and Lyford, Tex., who are not in the irrigated section, have met in growing citrus under dry farming methods, proves that the growing of

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# Factors Influencing Early Bearing in Apples

By R. H. Roberts  
University of Wisconsin

THE FIRST apples borne on a tree are its most valued ones. The first crop is rarely large enough to more than check the mounting expense connected with starting an orchard. This small financial help is, however, especially welcome. The early fruits also give promise of better times ahead. At least, one of the most discussed orchard cultural problems is the one of getting early bearing.

What should be done or not done to get apples to bear at an early orchard age? At times the answer seems clear; at other times it is not so definite. Trees which grow very much are usually late in bearing unless they produce terminal and lateral blossoms at an early age. Checking the wood growth usually helps early fruiting, but starved trees are late in bearing. Pruning is commonly found to delay bearing, but there are frequent and marked instances of cutting having hastened blossom bud formation. Sometimes the use of readily available nitrogenous fertilizers brings trees into bearing, and at other times it unquestionably retards early fruiting. How then can one be certain of what practice to use?

## Diameter of New Growth Is Important Factor

There seems to be one growth condition which is rather consistently associated with blossom bud formation. This is the diameter of the new wood growth. Blossom buds form on "fat" growths. As a rule, long growths are unfruitful and relatively slender in relation to their length. If they become very thick, blossom buds may occur along a three-foot shoot. Likewise, very short, slender growths are found to be unfruitful; but when they are very thick, blossom buds are abundant.

The thickening which appears to accompany blossom bud formation is that which takes place after growth in length is completed. Thus, if growth stops suddenly, whether short or long, slender growth and unfruitful conditions are the result. Typically, the terminal leaves on such shoots are small. On the other hand, if growth is continued after apparent elongation

is completed, the later formed leaves will grow to be larger and the shoot will also become thicker. It is a matter of common observation that terminal blossom buds form where large leaves are present (Figure 1); that is,



Figure 1.—Shoots or spurs with small terminal leaves (A) do not usually form blossom buds. Blossom buds are generally found on growths with large terminal leaves and of thick diameter (B)

varieties having large terminal leaves are more commonly terminal fruiters. This condition appears to hold for different varieties as well as for a single variety. If diameter of growth can be used as an index of when a tree will blossom, and if a thick diameter is necessary in order to have blossom buds, what are the conditions causing secondary thickening of the twigs?

## Plant Foods Affect Type of Growth

The foods which a plant contains affect the type of growth produced. I do not refer to the food materials, such as the mineral salts, but to the elaborated foods which are available within the plant to be used in the growing regions for new vegetative extension. Like animals, the plants use carbohydrates and proteins with which to make growth. The carbohydrates are used for cell walls and structural materials and the proteins for living matter. The farmer balances the rations for animals. The orchardist changes the food balance by varying the supply of food materials out of which the plant constructs its foods. The carbohydrates are manufactured in the leaves in the presence of air and sunlight. This is the method nature has of utilizing the energy of the sun. The green chlorophyll of the leaves forms these substances, which are stored as reserves and used to supply energy to the plant. As the carbohydrates are used, acids are formed. When nitrogen becomes combined with these acids, the building materials for proteins result. Thus, the relative amounts of carbohydrates and proteins is varied by the supply of materials. With the variation in foods there is a corresponding variation in the kind of growth which results. For example, trees which are very high in nitrogen content and correspondingly low in carbohydrates have dark green leaves and usually slender, willowy growths. Likewise, trees with very high carbohydrate content, accompanied with a low nitrogen supply, have light green to yellowish leaves and stiff, slender growths. Neither is fruitful. Trees with inter-

(Concluded on page 15)

# How to Detect and Control Field Mice

By James Silver  
United States Biological Survey

THOUSANDS of valuable fruit trees are destroyed or seriously injured every winter by field mice. Because such injury is not regular, a grave danger arises. How can a grower know in advance when his trees are likely to be damaged, and, knowing, how is he to prevent the injury? This article has been prepared by the writer as a result of a study of the problem extending over a number of years.

In answering the first question, it must be admitted that the orchardist cannot know definitely that there will be injury even if mice are abundant in the orchard, for there have been many such cases under observation where the mice have not harmed the trees. But, on the other hand, there are many records of serious injury where only a few mice have been present, and of whole orchards being destroyed in a short time where mice were plentiful. It all depends on the food supply in the orchard. When the more favored supply of food runs short, the mice turn to the succulent inner bark of the fruit trees to tide them over till spring. In other words, if the mice are present at all, they are at least a menace, and there is somewhere near an even chance that with mice present there will be some injury and possibly one chance in four or five that the injury will be serious. If no mice are present after the first hard freeze, the chances are good that there will be no further migration of mice into the orchard, and, therefore, there need be no great fear of mouse injury.

## Injurious Kinds Leave Signs of Presence

But how is the orchardist to know that he is harboring any of these hidden creatures, many of which live entirely under the ground and usually work under cover of darkness? Fortunately, the injurious species of mice leave definite signs of their presence that are not difficult to recognize,

their detection requiring close observation only. First, however, it is necessary to know that in most of the states east of the Mississippi River, there are two genera of mice that are injurious to trees, and although they look much alike, their habits are very different. Their control, except in the case of poisoning, requires different procedure so that it is necessary that

the fruit grower be able to tell the kind of mouse with which he has to deal.

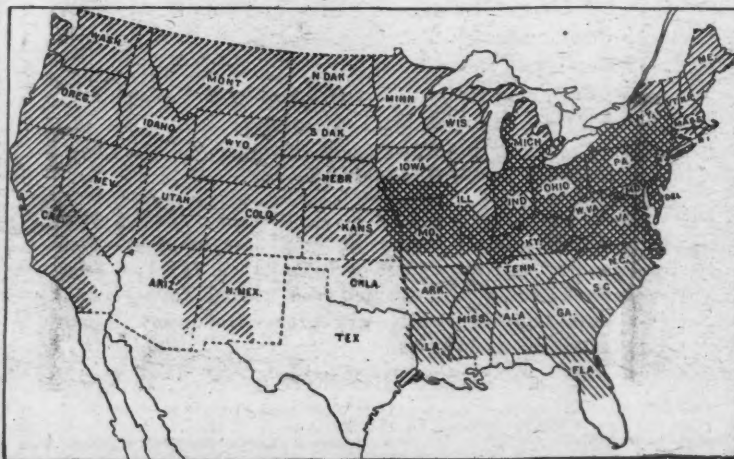
## The Pine Mouse

The more dangerous of the two mice is known as the pine mouse (*Pitymys*). Its northern range, as shown on the accompanying map, is roughly along the southern border of Connecticut and New York; extending west to eastern Kansas. Orchardists within this area have both mice to contend with, while those well outside the range are concerned with the less destructive of the two, known as the meadow mouse (*Microtus*). The pine mouse is almost wholly subterranean and is seldom seen on the surface. It never burrows so close to the surface that it leaves raised ridges as does the mole. Opposed also to the habit of the mole, which never permits an opening in its runway, the pine mouse constructs small openings to the surface at frequent intervals. It is these small openings or holes that one must look for in searching for signs of this mouse. These are not hard to find, unless the cover is very heavy, and there will be a number of holes to be found for each mouse present.

## The Meadow Mouse

The meadow mouse lives largely on the surface, making characteristic trails, well hidden in tall grass or weeds, which only occasionally disappear beneath the surface under dense sod, root masses, or where the ground is particularly soft. In look-

(Continued on page 24)



Range of meadow mouse (*Microtus*) indicated by lines running northeast to southwest. Range of pine mouse (*Pitymys*) indicated by lines running northwest to southeast

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# New Developments in Pruning Peach Trees

By E. C. Auchter

University of Maryland

PEACH trees bear their fruit on wood of the previous season's growth. When we head back the branches of a peach tree, a vigorous growth of new shoots takes place immediately below the points where the cuts are made. These circumstances are probably responsible for the comparatively heavy pruning which has been practiced in peach culture. Developments of the past few years indicate that this method is incapable of producing the best results, and they point out means by which better results can be secured.

## Pruning is a Dwarfing Process

Heavy pruning is a dwarfing process. Trees pruned heavily each year from planting have smaller trunks and smaller limbs, make less total top and root growth, come into bearing later, have smaller bearing areas and bear smaller crops. Although peach trees can, as a rule, be pruned heavier than such fruits as apples and pears, still heavy pruning has a dwarfing effect on them, as on the other fruits.

When several branches of a young tree are removed by "thinning out" and those remaining are "headed back" severely, a large number of buds, which might otherwise grow, are removed. A cluster of vigorous shoots will emerge just back of where the limbs are cut on the heavily pruned trees, but the lightly pruned trees, with a larger wood surface and more buds left to grow, will produce a larger number of somewhat shorter growths evenly distributed over the tree. While the trees are young, more new bearing wood will thus be produced on the lightly pruned trees.

When less of the wood and buds is removed by lighter pruning, more leaves are found on such trees. The leaf area of young trees is reduced in proportion to the severity of the pruning. With the leaf area reduced, the total amount of carbohydrates (starches and sugars) which is formed in the leaves is also reduced. Since these carbohydrates and other materials formed from them are the foods which cause tree and root growth and fruit bud production, it can easily be seen why heavy pruning will dwarf the tree and decrease fruit yields.

## Pruning the Young Tree

The quicker a tree of large proportions can be grown, the quicker it will come into profitable bearing. It can thus be seen that the less pruning that can be done, consistent with forming a strong, well-shaped tree, the better.

Well matured trees of medium to large size are desirable for planting. The usual practice in most sections is to cut back these "whips" to a height of 18 to 22 inches. This allows for a low headed tree and still leaves room for working the soil and combating the peach tree borers. If no buds or limbs are left below this height, then the trees should be headed higher. If the buds below this region have grown out into weak branches in the

nursery, they should be cut back to stubs of one bud. New limbs will either grow from dormant buds at the base of these stubs or from the buds left on the stubs. If the tree as it comes from the nursery has numerous strong, well matured and well spaced branches, which is usually not the case, these can be "thinned out," three or four being left and shortened back moderately.

## Pruning After One Year's Growth

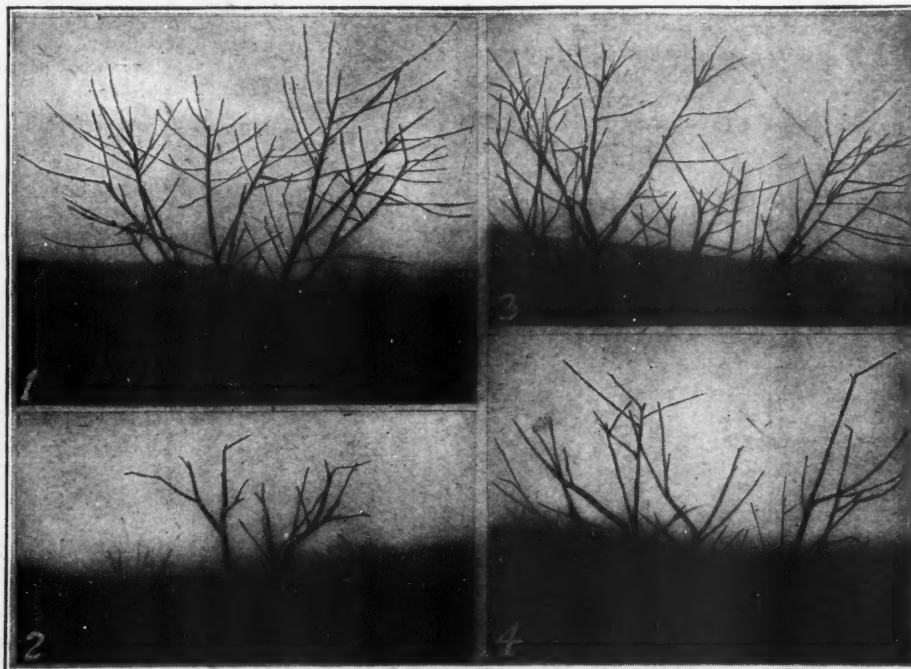
During the first season's growth, several buds will usually grow out into branches. The following spring three or four of these branches, spread as far apart as possible and spirally about the trunk, should be selected to form the head of the tree,

and the remaining branches should be removed. In some regions never more than three scaffold limbs are left. Three limbs are sufficient to make an excellent tree if nothing happens to one of them. If, however, one of these limbs is broken out during cultivation by careless labor, as often happens in some of the large orchards, the size of the tree becomes seriously decreased for a year or two. In view of such circumstances, four or possibly five scaffold limbs are to be preferred. Pruning to an open head is generally practiced with peaches.

The scaffold limbs selected should be headed back, the amount depending upon the growth they have made. If the limbs selected are not over two feet in length, it will be inadvisable to head them at all. Heading back will simply decrease the number of buds that will grow, decrease the leaf area, and dwarf the tree. If the scaffold limbs are three feet in length, it will probably pay to head back six or eight inches to the first group of laterals, which are generally found on such limbs. This will cause the formation of the secondary scaffold branches far enough out from the trunk to secure a large tree quickly without making it too "leggy" or "willowy." As a matter of fact, these main limbs, due to the increased leaf area, will be thicker after one year's growth than if they had been shortened back severely. (In regions where tip injury from the oriental peach moth is severe during the middle of the growing season, no heading back will be necessary.) Under the old system of pruning, these scaffold limbs would be headed back evenly to stubs about 12 inches long. Several vigorous shoots would grow from each stub the next year, making a very dense, bushy tree.

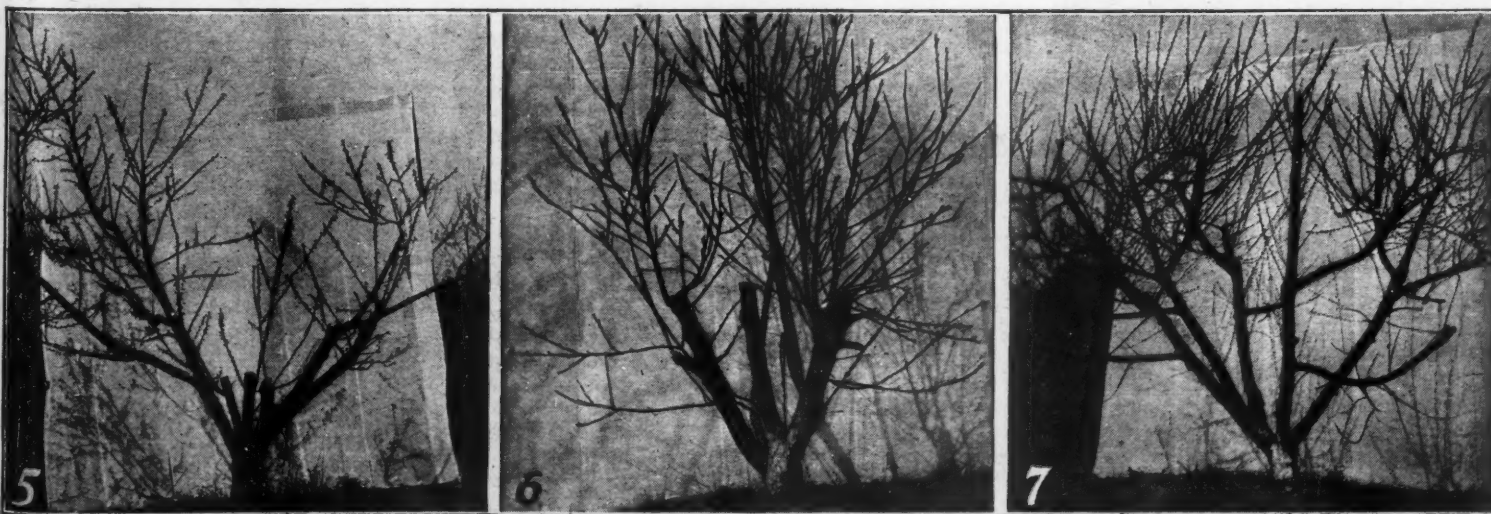
## Pruning After the Second Year's Growth

After the second year's growth, three or four strong laterals from each of the main limbs of the year before are selected to continue the framework of the tree. The remaining shoots should be thinned out moderately, and those left should be headed back (Continued on page 10)



Methods of pruning peach trees

Figure 1.—Lightly pruned in the dormant season after two years' growth. Such trees are larger, come into bearing earlier and bear larger crops of better colored fruit than those heavily pruned, as in Figure 2. This tree has been thinned out and headed back lightly. Figure 2.—Heavy pruning after two years' growth, as practiced in some regions. The trees are dwarfed by such heavy pruning. Bearing is delayed and decreased in amount compared with trees pruned as in Figure 1. The practice has very little to commend it. Figure 3.—Showing desirable light pruning in the tops of a tree after three years' growth. Shoots on the main limbs in the center of the tree have been left. Such growths bear considerable fruit during the third and fourth summers. Figure 4.—Illustrating too much thinning out and heading back after three years' growth. Compare with Figure 3.



Methods of heading back peach trees

Figure 5.—When one limb only is dehorned each year, the stub either dies or produces a very weak growth. Note very little growth on any of the three stubs. The first limb was dehorned three years ago. Figure 6.—Such heavy dehorning following the loss of a crop is unwise. The bearing area of the tree is decreased for several years. Few fruit buds form the first year on such dense and rank growth. Compare with Figure 7. Figure 7.—Trees dehorned moderately produce a large number of medium length shoots with numerous fruit buds. The bearing area is not greatly decreased. Note new growth in center of tree.



# American Fruit Grower Magazine

Established 1880.

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## Practical Method of Increasing Fruit Consumption

EVERY fruit grower is, or should be, interested in increasing the consumption of fruit. Increased use of fruit would strengthen the demand. Better prices would result.

The orange growers have increased the consumption of their product until now about 58 oranges are being used per capita yearly in the United States. These growers, through their powerful organizations, will probably be able to still further increase the consumption of oranges. The raisin growers, the cranberry growers and some of the pear growers have made material progress in increasing the consumption of their products.

Apple growers have made practically no progress in increasing consumption, aside from the work accomplished during National Apple Week. A few brands have been advertised by associations, but practically nothing has been done in a large way by advertising and merchandising methods to promote apple consumption. Government figures show that the American people are eating only about half an apple per capita per day in all forms.

Now, of course, the best way to increase consumption is through a comprehensive plan involving production, merchandising and advertising. These three things are each important steps and must be considered together in any successful marketing plan. Growers who are well organized can use such plans, but others cannot.

Even though all of us are not in position to stimulate consumption by the best known business methods, there is one way by which we can all help to increase fruit consumption. That is by talking fruit to our friends and relatives.

All of us make visits and receive visitors frequently, and all of us meet people in stores, on the street, on trains and at meetings. If every one of us would call attention on such occasions to the healthful properties of fruit and make suggestions as to how fruit can be obtained, the combined result would be surprising. Our wives and grown daughters can help greatly in this matter. Just a word to mothers telling them how the children can be kept healthy by feeding them fruit, and how the doctor is kept away by such means, will

work fine results. Even the boys and girls at school can help by telling other boys and girls what a good thing it is to eat fruit. Some of them will be influenced to go home and ask their fathers and mothers for more fruit. Then Pa and Ma will soon be making tracks to the grocery store.

Of course, we must be diplomatic in these things. Say just enough to get the suggestion across. Don't spoil the proposition by pressing the subject too hard.

This plan of action may seem like crude advertising, but if you will think the problem over, we believe you will agree that it is not. The object of any kind of advertising is to bring an idea forcibly before the prospective customer's mind. Different kinds of advertising simply represent different methods of accomplishing this purpose. The method suggested has two important advantages over printed advertising. It carries with it a personal touch, and then again, the confidence resulting from acquaintance is an important advantage.

Let every fruit grower and every member of his family promote increased consumption of fruit on every possible occasion. Talk the matter over at meal time at least once a week. Let every member of the family tell what he or she has done, and plans to do, to help increase fruit consumption. If each person in the industry will do his or her part, the combined result will be of tremendous value.

## Federation Favors Amendment of Inheritance Tax Law

THE AMERICAN Farm Bureau Federation is endeavoring to secure amendments to the federal inheritance tax law. At present, the law allows deductions not to exceed 25 per cent to offset inheritance taxes paid to the state in question. The federation proposes to have the possible deduction raised to 75 per cent of the tax paid.

This step is being taken because some states have repealed their inheritance and estate tax laws, and others are contemplating the same. It logically follows, according to the federation, that all states will probably repeal their inheritance tax laws, considering the circumstances; in order to offset the tendency of people to establish their residences in states requiring no inheritance taxes.

Since farmers have very few inheritance taxes to pay, because of their relatively low earnings, the federation is taking the view, very properly it seems, that the abolition of this tax will tend to throw a heavier burden of taxation on the farmer, who is already taxed more heavily than most other classes. Sufficient taxes must be paid by the people in general to meet the needs of our local, state and national governments. If the source of income from estate and inheritance taxation is cut off, more money would have to be raised through other kinds of taxation, and this would inevitably result in heavier taxation for farmers.

## Co-operatives Should Be Exempted From Income Taxes

A COMMITTEE representing various farm organizations is attempting to get the Internal Revenue Act amended so that co-operative associations will not be required to pay income taxes. The committee takes the view that co-operative associations make no profits as such and that any amounts which accumulate are the result of overcharges for supplies purchased through the association or underpayments made on products sold through the organization. The funds, therefore, are the property of the individual members and not the property of the association.

George R. Wicker, representing the committee, recently presented the matter to the Ways and Means Committee of the House of Representatives. The viewpoint of the farmers' committee is thoroughly justified when one considers the principles under which co-operative organizations are operating. The co-operative associations should most certainly be exempted from the payment of income taxes.

## Leaders Unite on Legislative Program

THERE is now considerable promise that the various farm factions will be united on an agricultural legislation program during the following winter. For the past two years there has been much division of opinion regarding legislative plans, and this has resulted in the passage of practically no legislation in the farmers' interests.

Secretary Jardine has been instrumental during the past few months in bringing together for consultation, leaders from various sections and representing different commodities marketed co-operatively. While no detailed plan has been presented as yet, a general statement has been issued to the effect that the leaders consulted approve the plan and that they will support the same. It now remains for the plan to be developed in detail.

The plan provides for the creation of a division of co-operative marketing in the Bureau of Agricultural Economics. The duties of the division will be to foster and aid co-operative marketing. It is not planned, however, to give the division such powers as were proposed in the Dickinson bill, which was before Congress last winter; this bill proposed to set up a marketing board with authority which many leaders feared would jeopardize co-operative marketing and probably place it under political domination. Neither does the plan propose to establish an export corporation like that provided for in the McNary-Haugen bill.

The plan has many elements of soundness. If placed in operation, it would undoubtedly be an important factor in developing the movement. It would tend to discourage the unfair opposition now being practiced against co-operation by some interests. It would place the stamp of the government definitely on co-operative marketing. The plan looks like a sound, middle-ground proposition that ought to prove a great help to the co-operative movement.

## Governors Favor Equality for Agriculture

"IF THE American protective tariff is to be retained, legislation must be enacted which will give agriculture equality with industry and labor in the American protective system," is a part of a resolution passed by the governors of North and South Dakota, Minnesota, Nebraska, Missouri and Iowa when they held a midwest governors' conference at Sioux Falls, S. D., on October 29.

"The last General Assembly of Illinois memorialized Congress to take some action on this same problem. Many other states have done likewise. All of which indicates that there is strong feeling . . . for some provision being made to permanently relieve American agriculture from world competition—an accomplishment gained by both industry and labor, and largely because of farmer support."

Before winter closes in, look around carefully and make sure that all tools and equipment are placed under cover. Much money is lost every year by having valuable tools exposed to the winter weather.



# Rambles of a Horticulturist

By C. E. Durst

## New Manager Employed

The employment of a manager was one of the most important recommendations. In compliance with this recommendation, the directors hired C. C. Commander, a grower member of the organization and a man who has successfully filled positions, as local and sub-exchange manager. Mr.

ganization, chiefly of a political nature, the exchange now seems on firmer ground than it has perhaps ever been before. After all, co-operative marketing will succeed or fail in rendering service to its members and in commanding their respect and confidence according to whether or not its operations are conducted on sound

yearly from northern nurseries. In either case, the plants are set in nursery rows. Runner plants from these are set out in June. The original setting is then plowed up. The beds set in June are retained for the fall and winter crops, but runner plants from them are used to set additional beds up to October. The best results are usually secured from plants set in September. After a bed has fruited, it is usually plowed up, few attempts being made to hold beds over for the

second or third year, as is common in northern states.

The difficulty in carrying plants through the summer is mainly responsible for this.

The plants are set on ridges in single or double rows as a rule. Sometimes three or four rows are set together on raised beds, the individual rows being set about 14 inches apart. Heavy fertilizing and the most intensive cultivation are necessary for best results.

## Handling the Berries for Market

While the cultural methods are important, the methods of marketing are even more interesting; in fact, the methods of marketing have been chiefly responsible for the development of the industry. Some berries are shipped to nearby markets in 32-quart crates by express, and some are shipped in carlot quantities under refrigeration. The pony refrigerator crate, however, has been the factor of greatest importance in Florida strawberry marketing. With its help, berries can be shipped to distant

markets in small quantities by refrigeration. The crates are made in three sizes, holding 32, 64 and 80 quart boxes, respectively. The 80-quart size is most commonly used, especially for long distance shipments.

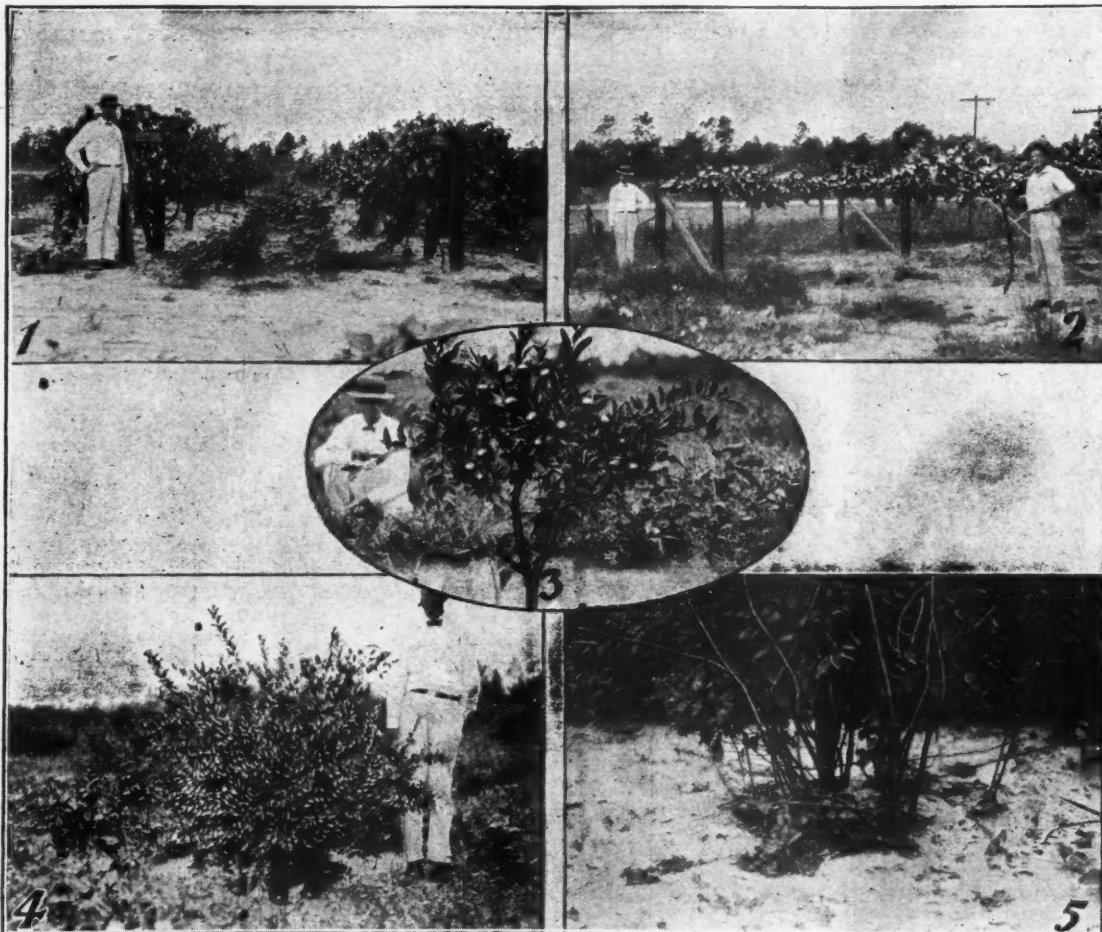
The refrigerator crates are made of heavy material and are strong and well insulated. Each crate has an ice chamber, in the form of a galvanized box four inches wide, placed vertically across the center of the crate. The berries are packed securely on both sides of the ice chamber to the height of the chamber, and then an ice pan, about six inches deep and covering the entire crate, is placed over the berries. Both receptacles are then filled with broken ice. The heavy lid is bolted down tightly. Drain pipes let out the accumulating water. The crates cost about \$15 each. After being sent to market, they are returned to the growers. Being well built, they last several years.

There is practically no development of co-operative associations so far as strawberry marketing is concerned. The berries are either sold to buyers on the ground or shipped by growers directly to outside markets.

## GRAPE CULTURE IN FLORIDA

While citrus fruits hold the center of attraction in Florida horticulture,

(Continued on page 25)



1.—Grape vineyard of A. L. Cottrill, De Funiak Springs, Fla., in its second season of growth. (W. R. Stinson standing.) 2.—A one-year-old cane in the Cottrill vineyard fully 30 feet long. 3.—This Satsuma tree grew its new top since the former top was frozen off during the winter of 1924-25. The tree is carrying 33 oranges. 4.—Typical blueberry plant in plantation of W. R. Stinson, De Funiak Springs, Fla. 5.—This picture shows how the blueberry propagates by root sprouts.

A VISIT of a horticulturist to Florida would be far from complete without a visit to the Florida Citrus Exchange. The exchange is the largest factor in the marketing of Florida citrus fruits, and it also markets a considerable quantity of vegetables.

The headquarters of the exchange are located at Tampa. There are 12 sub-exchanges and about 125 locals, most of which have finely equipped packing houses. Under the present plan of operation, grower members sign a perpetual contract, which permits withdrawal of a member within a stated period each year. This plan is said to be much more satisfactory to growers than an iron-bound contract running over a period of years. The one-man-one-vote idea prevails. The locals receive, grade, pack and load the fruit, after which they notify their sub-exchange. The sub-exchange pools the reports from its locals and in turn notifies the central office at Tampa. The sub-exchange also conducts extension work among locals; it helps new locals to organize; it attends to complaints; and it receives returns from the central and distributes them among the locals.

## In Operation 16 Years

The exchange has been in operation 16 years and has been fighting a hard battle with steadily increasing success. For several years now it has been operating under rather unusual conditions. A number of years ago some difficulties arose in connection with the management, and since that time the directors have had no manager, each department reporting directly to the executive committee. The president assumed the responsibilities of the manager to a limited extent. While this method obviously lacked the co-ordination necessary for best results, the exchange had been progressing steadily under the system. However, the results were not all that leaders felt they should be.

A little over a year ago a strenuous reorganization campaign was conducted and the membership and tonnage were materially increased. Following this, the directors determined to introduce greater efficiency in the form of organization and operation of the exchange. In order to obtain an entirely unprejudiced set of recommendations, which could not be questioned, the exchange leaders very wisely called in an outside firm of organization experts to analyze the exchange and make recommendations. Erwin Wasey and Company of Chicago was the firm employed. Experts of the company examined in detail the operations of the exchange, the sub-exchanges and the locals. They interviewed employees, officers, members and business men. They visited sales offices in the important markets. They even made an extensive investigation of several successful co-operatives in other parts of the country.

Commander is a quiet, conservative, thinking type of man, who is easy to meet and whose manner commands confidence. Through his office the work of the exchange is being co-ordinated as never before. He has gathered around him such men as Gen. A. H. Blanding, head of the production or field service department (the organization of which was recommended by Erwin Wasey and Company); G. A. Scott, general sales manager; John Moscrip, advertising and publicity manager; E. D. Dow, traffic manager; W. T. Covode, cashier; and O. M. Felix, secretary. All of these men have excellent records, and indications are that they are working together in team-like fashion to make the exchange a success.

Another recommendation has resulted in giving the central greater authority over the employment and retention of sub-exchange and local managers. In the past certain managers have not properly supported the exchange. The positions of the employees are now subject to approval by the central organization. Thus, the chances are excellent that these men will give the central organization the support and co-operation that is necessary to make the whole organization a success.

Other important changes have also been made. While some difficulties have arisen as a result of the reor-

business principles. There are many reasons for believing that the Florida Citrus Exchange is now in better condition for operating on a sound basis than it has ever been before.

## THE PLANT CITY STRAWBERRY INDUSTRY

Just east of Tampa about 30 miles lies Plant City, the center of the rapidly growing strawberry industry, which reached a million dollar valuation for the first time last winter. At the time I made my visit (in August) there was little to see of the field operations. However, I had a very fine conference with County Agent R. T. Kelley of Plant City, who has been active in promoting the strawberry industry at Plant City and nearby points.

The berries begin to ripen in October and continue until March. Thus, the Florida berries have no competition, and, reaching the northern markets in quantity during the holidays and in the dead of winter, they bring fancy prices.

## Cultural Methods

The Missionary variety is most commonly used. Klondike is also popular. Both are perfect flowering sorts and the fruit as grown in Florida has good color, quality and carrying power. The methods of developing a patch are exceedingly interesting. While some growers raise their own plants, many of them secure fresh stock



# Propagation of Fruit Plants

## Part II.—Budding. Growing of Seedlings

By W. H. Alderman

University of Minnesota

**I**N THE first installment of this series of articles, published in last month's issue of the AMERICAN FRUIT GROWER MAGAZINE, the general principles of plant propagation were discussed, and explanation was also made of the methods used in propagating fruit plants by cuttings, layers, and grafting. In this issue propagation by budding will be explained, and the sources and handling of stocks used in propagating our common tree fruits will be discussed.

### Budding

Budding is really a form of graftage but differs in that it is nearly always performed during the summer, using single buds that have only recently been formed on the new shoots. It has some advantages over grafting in the propagation of trees. It requires less propagating wood and may be performed more rapidly than grafting. It is used almost universally in the propagation of stone fruits.

Budding can only be successfully performed when the bark of the stock will peel or "slip" readily. There are various forms of budding, but the one used for most purposes is known as shield budding. In this type, a T-shaped cut is made in a smooth place on the stock free from knots. A little flip of the knife will open the flaps of this cut slightly to allow the entrance of the bud. The bud sticks are taken from the current year's growth and may be used as soon as the buds have formed and have begun to mature or ripen. This time will vary somewhat with different fruits, the cherry and plum being ready first, followed by the apple, which in turn is followed by the peach, the last named fruit being rarely ready to bud before the latter part of August. Cherries are usually ready by the tenth or fifteenth of July. After cutting the shoot which will supply the buds, the leaves should be immediately trimmed away, leaving a short section of leaf stem attached to each bud to later be used as a handle. The bud sticks should not be allowed to dry or wither. They are usually wrapped immediately in damp burlap. Properly packed and held in a cool place they may be kept as long as a week, but it is preferable to use them within a few hours after cutting.

In preparing the bud, the bud stick should be held in the left hand with the base outward. A sharp budding knife should then be inserted from a half to three-fourths of an inch below the bud and with a smooth drawing cut passed under the bud and extended to approximately half an inch above the bud. A very thin shaving of wood may be allowed to adhere to the bud and mark, especially under the "eye" of the bud. This first cut leaves the bud hanging by a piece of bark at the upper end. This upper end is then cut off squarely and the bud, held by a leaf stalk handle, is pushed into the T-shaped opening in the stock. If the bark "slips" readily, the bud may be easily forced downward under the flaps of the cut until it is completely imbedded in the stock beneath the bark.

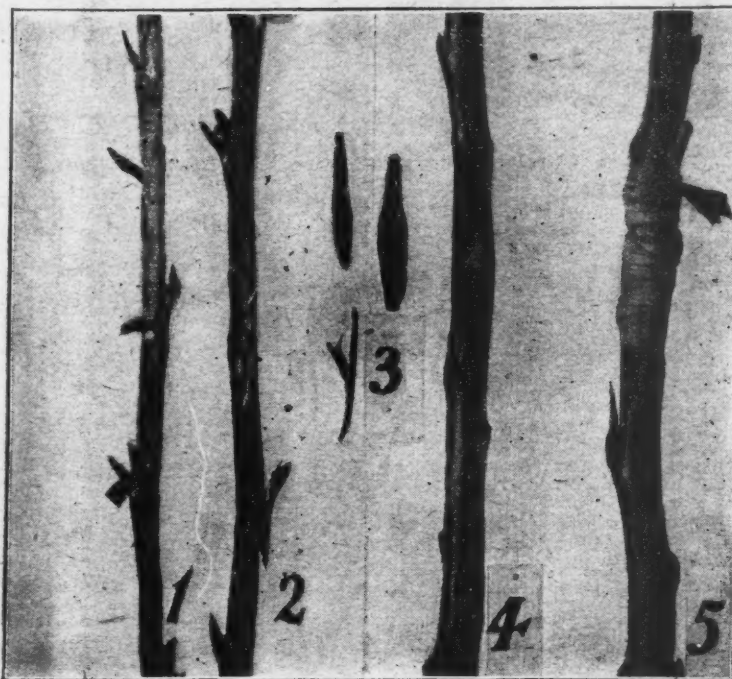
It is unnecessary to use grafting wax in the covering of the bud, but it must be wrapped firmly to hold it in position. The common wrapping material is raffia, cut into 14 or 16-inch lengths and slightly moistened. The operator wraps this raffia around the bud, first drawing the material across the open corners of the flaps above the bud. This holds the bud securely in position while the rest of the winding takes place. The raffia is then brought diagonally downward and a first complete wrap is made around the stock at the base of the split in the bark. The long end of the raffia is then wound round and round, proceeding upward in a spiral that covers everything in the wounded area except the bud itself and its handle. It is tied in a square knot which will hold securely enough. The "tying," as the wrapping operation is called, is of greatest importance. If the raffia is not pulled tight, there is small chance

of the buds living. On the other hand, if the raffia is tight, even an awkwardly made bud will have a good chance of success. In about two weeks after the bud has united with the stock, the raffia must be cut to prevent it from binding the growing stock too tightly. This bud remains dormant until the following spring. At that time the stock is cut away just above the union and all the growth of the plant goes into forcing the new bud into a strong shoot.

Some budders prefer, whenever

The procuring of seeds, the choice of suitable seed stocks and the growing of the seedling is a story by itself. In this series only a brief summary of this important phase of the nursery business will be possible.

American nurseries have long been largely dependent upon Europe for nursery seedlings. The highly developed art of gardening, the low priced labor and cheap transportation, have made it possible for Europe to produce America's seedlings at so low a price that until recently it has not



Methods used in shield budding

1.—Bud stick with leaves trimmed away leaving leaf stems for handles. 2.—Buds cut but hanging from stick. 3.—Buds ready to insert in stock. 4.—Bud in position. 5.—Bud tied with raffia.

possible, to "wood the bud." The proceedings are much the same as described above except that the cut beneath the bud is made much deeper, cutting well into the wood. A transverse cut above the bud, going only through the bark, is then made. If the buds are in good condition, they may be grasped firmly at the base of the handle between the thumb and forefinger and lifted from the bud stock. Such a wooded bud is supposed to have a slightly better chance of making a union than would a normal bud carrying a thin piece of wood.

A new tying material that will be of interest to the amateur is an ordinary rubber band about three-sixteenths of an inch wide. The circle bands are cut so that they form a straight piece of rubber, which is stretched slightly and wrapped about the bud similar to the raffia wrapping. The loose end is tucked under the final wrap. The rubber band has two advantages. First, it must be put on reasonably tight or it will not stay in position. Second, the rubber will disintegrate and the band break of its own accord in two or three weeks, thus saving the necessity of cutting the wrapper. With a little practice a tyer can use the rubber band as fast as ordinary raffia. An inexperienced tyer will use it with much better success.

### Growing Seedlings

Seedling rootstocks are essential in the propagation of all tree fruits which have to be budded or grafted.

### Sources of Seed and Stock

Most nurserymen prefer to buy their seedling stock of importers or from the comparatively few seedling growers in America, since the raising of seedlings is generally supposed to be a specialized industry. As a matter of fact, it is not difficult or expensive to grow seedlings, and a few nurseries, particularly the northern ones that are especially concerned with getting extra hardy roots, are making considerable progress in seedling production.

The following is a list of the more common deciduous fruits, showing the kind of seeds used and the sources of supply:

**Apple.** "French Crab Stock" is the commercial term applied to the imported seedlings. These are not grown from true crab seeds but from the seedling apple orchards of northern France, the fruit of which is used almost entirely in cider making. Both seeds and seedlings are imported. They make entirely satisfactory stock, except for the most northern districts, where they are likely to winter-kill in severe winters. Seeds from cider mills in the United States are also used to a considerable extent. These are, as a rule, about equal to the French crab stock. If seeds from American crabs could be secured, they would probably produce the best seedlings of all, since for the most part they make a vigorous and uniform growth and are extremely hardy. Siberian crab seeds (*Pyrus baccata*) are used for stock in some parts of Canada and northern United States.

**Pear.** Pear stock shipped in from Europe under the name of "French Pear" is grown from the seeds of the common pear (*Pyrus communis*). A few pear seedlings have been grown in the United States within the last few years and a few nurseries have begun to produce pear seedlings from the species known as *Pyrus ussuriensis*, an Asiatic variety found in northern China. This is somewhat harder than the common pear stock and is generally considered to be fairly resistant to blight. Some seeds are also obtained from the sand pear hybrids, such as Kieffer and similar varieties.

**Quince.** Very little quince stock is produced from seedlings. The best stock procurable is known as Angiers Quince. This is an imported stock grown from cuttings.

**Peach.** American nurserymen almost invariably grow their own peach seedling stock. The best seeds are collected from the so-called wild orchards of Tennessee, Kentucky and the Carolinas. These seeds are from seedling trees (natural fruit) which have small pits that produce a vigorous and uniform lot of seedlings. Furthermore, they have never been seriously invaded by the peach yellows disease. Pits from canning factories are large and uneven in size and produce very uneven blocks of seedlings.

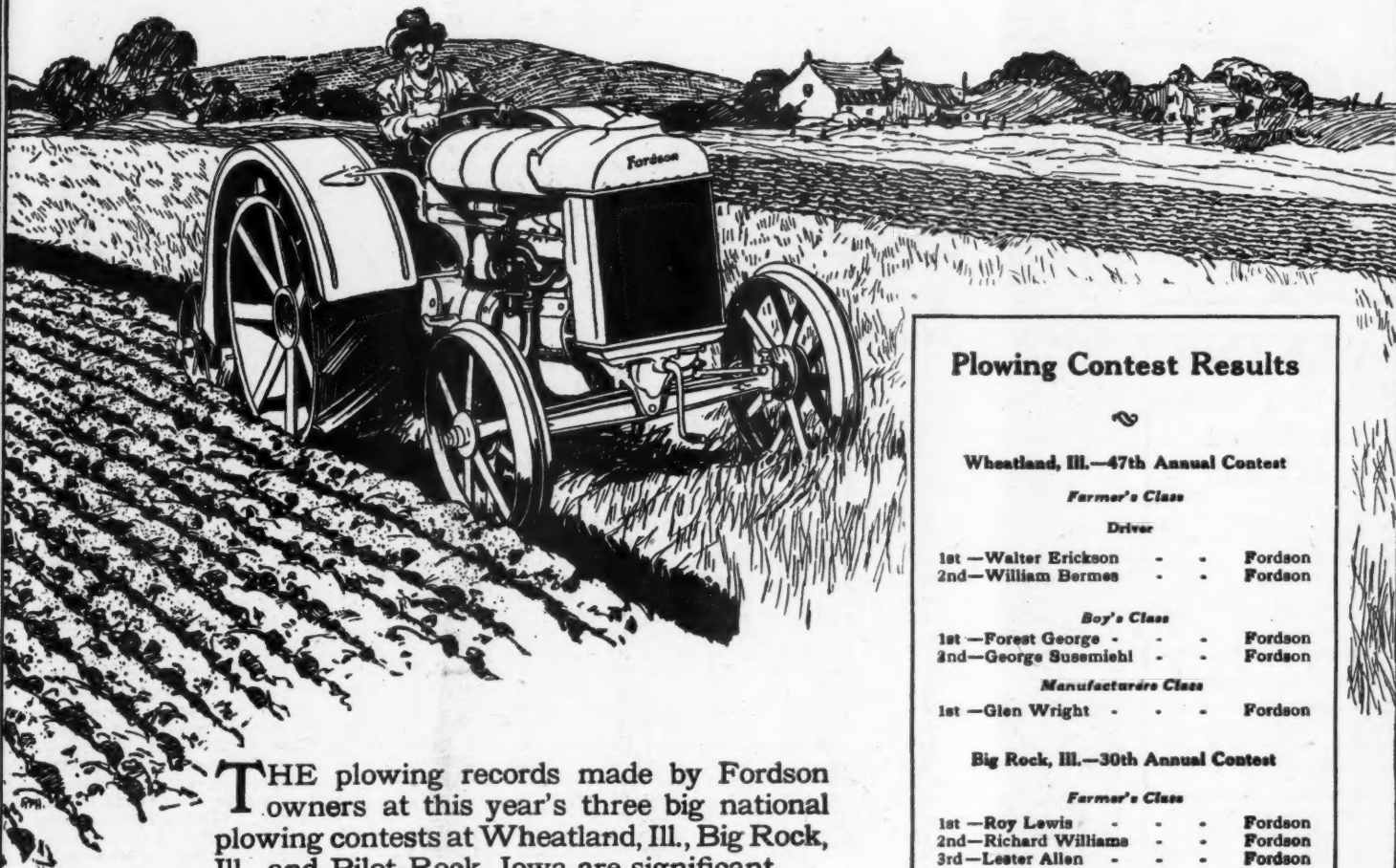
**Plum.** This fruit is grown on a great variety of stocks. The kind most commonly used by American propagators is the Myrobalan stock imported from Europe. The seeds from this plum are collected from semi-wild plantings in northern Italy. This stock is easy to bud and makes a very satisfactory growth. St. Julien, another imported stock of the Damson type, is rapidly going out of favor with American growers. The upper Mississippi Valley region uses the native plum almost entirely, *Prunus Americana* and *Prunus Nigra* being the favorites. However, the sand cherry (*Prunus besseyi*) is also used to some extent, especially if a partially dwarfed tree is desired. Ordinary peach and almond stocks are used in the southern states to quite an extent.

**Cherry.** The common stock for cherry is known as Mahaleb. It is a small, worthless cherry which grows wild in Europe and is used sometimes as a hedge plant. Mazzard stock, which comes from the seeds of the wild sweet cherry which has escaped from cultivation

(Continued on page 31)



# Records Prove Performance



THE plowing records made by Fordson owners at this year's three big national plowing contests at Wheatland, Ill., Big Rock, Ill., and Pilot-Rock, Iowa are significant.

In each case it was an outstanding victory for the Fordson—the lightest and lowest priced tractor entered. Performance such as this, in ordinary use as well as in contest, is a good reason why there are more than a *half million* Fordson owners today.

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Detroit, Michigan

# Fordson

## Plowing Contest Results

### Wheatland, Ill.—47th Annual Contest

#### Farmer's Class

##### Driver

1st—Walter Erickson	-	-	Fordson
2nd—William Bernes	-	-	Fordson

#### Boy's Class

1st—Forest George	-	-	Fordson
2nd—George Susemihl	-	-	Fordson

#### Manufacturers Class

1st—Glen Wright	-	-	Fordson
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### Big Rock, Ill.—30th Annual Contest

#### Farmer's Class

1st—Roy Lewis	-	-	Fordson
2nd—Richard Williams	-	-	Fordson
3rd—Lester Allen	-	-	Fordson

#### Boy's Class

1st—George Susemihl	-	-	Fordson
2nd—Archie Williams	-	-	Fordson

#### Manufacturers Class

1st—Glen Wright	-	-	Fordson
2nd—Arthur Stark	-	-	Fordson
3rd—Walter Corniels	-	-	Fordson

### Pilot-Rock, Iowa.—18th Annual Contest

#### Two-Bottom-Plow Class

1st—Henning Nelson	-	-	Fordson
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The 1925 Sweepstakes Championship—including all tractor and horse plowing—was awarded to Henning Nelson the Fordson entry.

## \$495

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Fenders and Pulley extra



## New Developments in Pruning Peach Trees

(Continued from page 5)



Atkins No. 11  
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adjustable to any  
angle. Handle is  
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# ATKINS SILVER STEEL SAWS

more severely than these framework branches. This unequal cutting, due to the resultant decreased leaf area, will dwarf these branches in comparison with those left to form the main framework. By having headed the tree lightly the first year and thus securing a more open and spreading type of tree, more framework branches can be left the second year than are usually left under the old system of heavy pruning. The framework branches should be headed back to outward growing branches, depending upon the growth that they have made. Such branches can safely be left about two feet long (see Figure 1). It is neither necessary nor wise to clip back all of the small laterals on these main branches, but they should be moderately trimmed out, however. Under the old system of heavy pruning, these framework branches would again be thinned down to two on each of the limbs left the year before and heavy heading back would be practiced under the incorrect theory that the trunks and main limb would thus increase more in thickness (see Figure 2).

#### Pruning After the Third Year's Growth

Following the third year's growth, about three main branches should again be selected on each of the main branches left the year before, to continue the framework of the tree. These should be headed back lightly to outward growing branches. The remaining limbs should be thinned out moderately, and those left should also be headed back moderately to outward growing branches (see Figure 3). As previously stated, the side laterals on the main branches should not be uniformly clipped back. After thinning these out lightly, an occasional shoot might be cut back, in order to maintain a better shape of tree. The shoots in the center of the tree should not be removed at this age, although the tree would appear to some to be better pruned if the main branches had these shoots cleaned out (see Figure 4). A large percentage of the first crop is borne on these shoots.

These methods of light pruning, together with early and thorough cultivation and the addition of larger amounts of available nitrogenous fertilizers where needed, should produce a tree capable of producing a good commercial crop during the fourth year. Belle of Georgia trees which were pruned by the above methods at the Maryland Experiment Station, produced one-third bushel per tree during the third summer, while other trees pruned heavily produced no fruit. Elberta trees, during their fourth summer, produced one bushel per tree, in spite of light frosts at blossoming time, while heavier pruned trees yielded one-half peck per tree. Estimates at blossoming time indicated that these lightly pruned trees might have yielded one and one-half bushels to one and three-fourths bushels of fruit per tree compared to one-half or two-thirds of a bushel for the heavily pruned trees.

#### Summer Pruning the First Year

The above described methods are those now being used successfully by several growers in the Shenandoah-Cumberland Valley region. A different method of training now being tried out by one large grower in co-operation with the Horticultural Department of the University of Maryland looks rather promising. In this case, trees four feet in height, which calipered about five-eighths inch in diameter, were planted. After planting they were headed 32 inches high, and any side branches which had grown in the nursery were headed back to stubs so that only one bud was left. There were several healthy buds on the trunk which had not "pushed out" in the nursery.

After the trees had grown about three weeks so that a good selection could be made, four shoots from the large number, which were growing on

the whips, were selected as the future framework of the tree and all others were removed. At this time, these shoots were only about two inches long and could easily be pinched or cut off. The four shoots retained for the future framework were selected so that no two would be closer than five inches apart. Their arrangement about the trunk was also carefully selected so that one would not be directly above another. Thus, the lowest limbs were from 12 to 15 inches from the ground, while the upper ones were approximately 30 inches. The trees made an excellent growth during the first year, and a main framework made up of four strong, well placed branches was obtained. These trees made slightly less total growth and leaf area than other trees which were not so treated. However, after the first year's growth, very little pruning was required for these summer pruned trees, while it was necessary to thin out the other trees so much that at the end of the second season's growth the summer pruned trees were equal in size to the others and had much more desirable heads. Future pruning will be light in the dormant season, as previously described. The results indicate at this time that this summer pinching or cutting during the first year may be a very desirable practice for growers to follow.

#### Pruning Bearing Trees

Older bearing trees will respond better if pruned somewhat heavier than young trees, but even with these older trees pruning can easily be too severe for the best wood and fruit production. Our experiments and observations show that it is not a wise practice to shear off uniformly the tops of bearing trees each year. In some sections, every shoot is headed back heavily with very little thinning out and the tops of the trees resemble a well clipped privet hedge. As a result of this practice, tree size and total yield are not only reduced, but the fruit produced is generally of poor color. This is because the fruit must of necessity be borne on the short growths left after pruning, and these become shaded by the dense growth which develops over the tops of the trees after such heading. These trees, because of having been consistently headed back, have stubby main branches, which do not open up very much with their crop of fruit. Thus, the fruit on old trees pruned heavily is often borne as high and sometimes higher than that on lightly pruned trees, the branches of which bend down with the weight of the crop. The shoots on heavily pruned trees also grow later in the season and due to poorer maturity are more subject to winter injury in regions where wood injury from low temperatures occurs.

The branches of bearing trees should be thinned out moderately, and those which are to continue the main framework of the tree, should be headed back moderately to outward growing branches. The centers of the trees should be kept reasonably open in order that the fruits will color better and in order that the growth of new shoots on the main branches may be maintained. Clipping of all laterals is expensive and decreases yields. One commercial orchard of Carman peaches in Maryland, five years old, pruned lightly, cultivated early and thoroughly, and fertilized with one and one-half pounds of nitrate of soda per tree, produced an average of five bushels of excellent, well colored peaches per tree during the past season.

After four or five heavy crops have been produced, it is well to head back heavier for one year and especially to cut out the higher limbs, which are growing towards the centers of the trees. The tops of the main framework branches can be headed back into two-year wood, leaving the side branches and lateral to bear the crop. This may reduce the crop somewhat

for one year but will cause new growth to be forced out lower down on the trees, especially on the inside of the main limbs. Thus, new limbs can gradually be developed and the tree lowered without the loss of a crop. After moderate pruning again for four or five years, the trees can gradually be rebuilt by this method.

Some growers are interested in rebuilding their trees by partial dehorning, that is, they wonder if one limb per tree cannot be dehorned each year to a stub and thus gradually rebuild the tree. When this practice is followed, the stubs either die or make very little growth (see Figure 5). This method would be more satisfactory if one limb were simply pruned harder than the others, but not stubbed back. It is better, however, considering yield and especially tree growth, to prune the whole tree moderately heavy when rejuvenating. Before the value of nitrogen in increasing wood growth was known, there was more excuse for heavier pruning of bearing trees located on light soils. With the same amounts of water and nitrogen available, and with fewer buds to feed, better wood growth resulted. By adding nitrogen and cover crops to the soil, however, satisfactory wood growth can be secured with lighter pruning, and less dwarfing occurs. Very vigorous, long and dense shoots, which develop in heavily pruned trees, are not so uniformly set with fruit buds as those of moderate lengths (18 to 20 inches) which are found on the more open, lightly pruned tree. Neither do the blossoms seem to "set" as well on these very vigorous shoots. The dense growth in the upper part of heavily pruned young trees either shades out the growths lower down or reduces fruit bud formation on them.

#### Other Orchard Operations to Be Considered

Lightly pruned trees, of course, become much wider and require more space in the orchard. As a result, many growers in the Shenandoah-Cumberland Valley section are now planting their trees 20 by 20 feet or 20 by 24 feet instead of the old distance of 18 by 18 feet. With the advent of paradichlorobenzene for borers and the general benefit secured from nitrogen applications, together with pruning rejuvenation practices, many growers are now planting peaches in solid blocks with the idea of a comparatively long time investment. Although the number of trees per acre is less, due to the greater planting distances, the total yields per acre are higher. The initial investment is less for trees, and pruning costs are likewise decreased.

It is necessary, however, to fertilize each tree heavier than under the old system of pruning and to give earlier and thorough cultivation. In light soils especially, plenty of organic matter should be turned under, not only from a general fertility standpoint but as an aid in increasing the water holding capacity of the soil.

#### A Warning Where Light Pruning Is Practiced

It is reasonable to suppose that if enough wood and buds are left on a tree to at least double its yield, more moisture and fertilizers will be needed. Thus, the grower who has been pruning hard, fertilizing little, cultivating moderately well, and securing an average yield of one and one-half bushels per tree, will find himself in trouble if he decides to prune lightly and does not adjust his other practices in proportion. If nitrate has paid under the heavy pruning system, more will be required with light pruning. Early and thorough cultivation should be given, and those cover crops which will make the most organic matter under the local conditions should be used. More thinning of the fruit will generally also be required.

Fruit of good size might be secured  
(Concluded on page 14)





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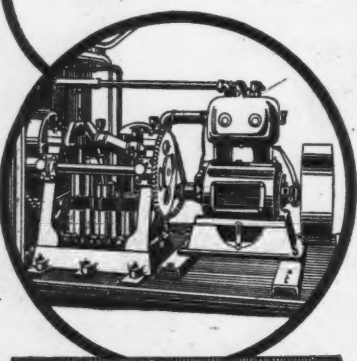
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## The Editor's Mail Box

### Dressings for Pruning Wounds

AMERICAN FRUIT GROWER MAGAZINE: I want to do a lot of pruning on my apple trees this winter. Is it necessary to paint the wounds? If so, what is the best material to use?—J. J. K., Missouri.

ANSWER: Formerly, it was generally recommended that all wounds be painted, but various investigations in recent years have shown that practically all dressings delay the healing of the wounds to a certain extent. Most experiment stations are recommending the painting of wounds one and one-half to two inches in diameter and larger, but no painting of smaller wounds. White lead and linseed oil, and white lead and zinc with linseed oil, make good coverings. Grafting wax gives good results. Sodium silicate dissolved in water seems to make a good covering.

In applying the dressing, apply it only to the wound and not to the bark. Most of the dressings injure the bark when covered over it.

In the case of trees affected with serious internal diseases, such as fire blight, it is well to treat all wounds with a solution of mercuric bichloride, one part in 1000 parts of water. Follow with an application of hot grade-D asphaltum.

### Pruning Gooseberries and Currants

AMERICAN FRUIT GROWER MAGAZINE: My gooseberry and currant bushes have become very thick and have not borne much fruit the last few years. Do they need pruning? If so, tell me how and when to prune them.—A. F. E., Pennsylvania.

ANSWER: The fruit of both gooseberries and currants is borne near the base of one-year-old wood and on short spurs on the older wood. The best spurs appear on fairly vigorous wood, and few spurs are produced on wood older than two or three years. The object in pruning should be to keep the bush fairly open and to retain a fairly good supply of young wood.

The most successful growers of these fruits remove each year the old wood and leave a good supply of one, two and three-year-old wood; in fact, many growers systematize the pruning so as to leave as far as possible only three to four canes each of the one, two and three-year-old wood. All other canes are removed. This method leaves the best kind of fruiting wood, and it also produces a bush with about the right amount of wood for good results.

Currants and gooseberries can be pruned any time during the dormant season. Black currants should be pruned more heavily than red or white currants, as a rule.

### Emphasize Marketing Problems

AMERICAN FRUIT GROWER MAGAZINE: For several years I have been a reader of the AMERICAN FRUIT GROWER MAGAZINE and have watched its constant and steady growth with a great deal of pleasure. It seems that within the past year there is developing a change in sentiment that presages a wider field of service than the paper has heretofore rendered. Your article in the September number of the magazine, "Rambles of a Horticulturist," suggests the development of a comprehensive marketing association for the Shenandoah-Cumberland growers. To me this indicates that you are beginning to realize that the farmer's income depends upon how well his products are sold, as much as upon the quantity he produces. This leads me to hope that in the future your paper will give constantly more and more attention to marketing problems until the marketing and economic problems will share equally in space with production problems.

Quoting from the AMERICAN FRUIT GROWER MAGAZINE: "Secretary Jardine believes that the best way in which the government can help co-operative marketing is for it to help the farmer help himself." The same could be said of the AMERICAN FRUIT GROWER MAGAZINE or any other paper—the way to help the farmer is to help him to help himself. The mistakes of production have been called to his attention almost to the exclusion of his mistakes in marketing. A reversal of the

program for the next few years would be beneficial.

I wish to commend your editorial in the September AMERICAN FRUIT GROWER MAGAZINE, "Going Somewhere," and make the following application: The first young man I would compare with the system of marketing products usually followed, called dumping; the second, I would compare with co-operative marketing.

Most papers and magazines contain 90 to 100 per cent production literature. If we could have more stress put on marketing, have the subject analyzed and presented in plain language that the average producer could understand, I believe his interest would be just as keen in his marketing and economic problems as it now is in his production problems. That is why I see a large field of service opening for magazines of the type of the AMERICAN FRUIT GROWER MAGAZINE.—J. H. Aweil, President, Wenatchee District Co-operative Association.

ANSWER: Your letter explains so clearly the viewpoint we have been trying to take on marketing that we are printing it so that all of our subscribers can read it. We agree that growers should give more attention to marketing, and we are trying to impress them with the importance of this side of their business, as well as give them information about it.

### Handling Grape Cuttings

AMERICAN FRUIT GROWER MAGAZINE: I want to enlarge my grape vineyard. Can I take cuttings from the vines when I prune them this winter? If so, please tell me how to handle them.—W. E. K., Kansas.

ANSWER: You can take cuttings from your vines when you prune them this winter and develop new plants from them. Take the cuttings from wood of the past season's growth. Give preference to healthy, well matured, short-jointed, medium-sized wood. The cuttings should be eight to 12 inches long and should contain three or more buds. In trimming them, make slanting cuts through or slightly below the lowest bud and one to two inches above the upper bud.

Take the cuttings immediately after pruning so as to prevent them from drying out. Tie them in bunches of about 50, with the lower ends all one way. Then place them with the lower ends up in a trench on the outside or in a cool basement or storage room and cover with three to four inches of soil. If they are placed on the outside, cover the soil with straw or manure when cold weather arrives. The placing of the lower ends upward in warm soil near the surface will cause them to callus, while the upper ends, being in the cool soil below, will not start growth.

Early in the spring, set the cuttings in a trench on the outside to such a depth that the upper bud will be slightly below the surface when the trench is filled. A distance of 10 to 12 inches should be allowed between cuttings. Good care for a season will usually produce plants of sufficient size and vigor for setting out during the following fall or spring.

### Mulching Strawberries

AMERICAN FRUIT GROWER MAGAZINE: Is a mulch necessary for strawberries? If so, what kind of material is best and how and when shall I apply it?—L. E. R., Colorado.

ANSWER: A mulch for strawberries is not absolutely necessary, but it is a good thing to use one. A mulch prevents heaving of the plants as a result of freezing and thawing. It also keeps the berries clean in the spring. It keeps down weeds and prevents evaporation early in the season. Properly handled, a mulch will delay blossoming and thereby decrease damage from late spring frosts.

Many kinds of materials are used in different parts of the country. Wheat straw probably makes the best mulch. From two to five tons per acre are necessary for a good job. Oat straw mats down too closely, and under some conditions it may damage or kill the plants. Coarse, strawy manure is often used successfully. Marsh

hay is used in some sections, and it makes a good mulch, although it is somewhat difficult to handle. Shredded cornstalks and pine needles are used in some sections. The best mulch is one which gives the necessary protection and which does not lie so closely to the ground that there is danger of smothering the plants. Mulching material should be free from weed seeds.

Some growers prefer to apply the mulch early in the fall, while the ground is yet unfrozen. Others delay the application until the ground is permanently frozen for the winter. As a rule, the mulch is banked somewhat over the rows.

### Copyrighting a Farm Name

AMERICAN FRUIT GROWER MAGAZINE: I should like to give my farm a name and have it copyrighted. Will you kindly tell me how I can have this done.—J. A. K., Missouri.

ANSWER: I regret to advise that farm names cannot be copyrighted as such by the federal government. The government patent office registers as trade-marks only distinctive names used in connection with articles of merchandise.

You could, however, accomplish the desired end by using the farm name as a brand for products marketed from the farm and sold in interstate commerce. The brand must actually be placed on the products and an affidavit must be furnished that the same were sold in interstate commerce. The products can be taken over the state line by train, by boat, by auto or on foot. An invoice, properly made out, will suffice to prove interstate shipment. Several copies of the brand must be filed with the United States Patent Office at Washington. It is my recollection that a year must elapse before registration is approved in order to allow complaint by persons who may hold that the brand is an infringement on one owned by them.

Some states register the names of farms. I suggest that you write your Secretary of State at Jefferson City, Mo.

### When to Prune Grapevines

AMERICAN FRUIT GROWER MAGAZINE: When is the best time to prune grapevines?—R. E. W., Ohio.

ANSWER: Grapes are probably best pruned comparatively early in the winter. The canes often bleed badly when pruned late in the winter. No one has proved this to be a great damage to the plants, but it does not seem a good thing. No bleeding follows early winter pruning, and it is probably best to do it at that time. However, you should wait until the plants are thoroughly dormant.

### Burlap for Apple Tree Borers

NOTE your advice on the treatment of apple borers in the May issue. Screen wire is good but too expensive. It is too hard to keep on the trees so it will keep out the beetles, and it must be removed in the fall to permit examination of the trees. Unless heavy paper is used, it blows off and then the tree sun scalds. Trees sometimes scald under veneer covers. Washes and paints are ineffective or injure the bark. Digging out the borers is good but it is a big job.

I have had the best success from wrapping the trees with burlap. It is easy to put on and to remove. It does not injure the trees. Since I have been using burlap, I find only about three or four borers in 100 trees each year, but formerly, without the burlap, I used to find five or six in nearly every tree. The borer is the worst enemy of apples in this section.—A. L. Zimmerman, Missouri.

AMERICAN FRUIT GROWER MAGAZINE: Enclosed find a subscription for a friend of mine. I consider your magazine one of the very best published and consider myself lucky to have found it. Hope my friend will like it as well as myself.—George W. Cairns, California.





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Never before has any manufacturer of gear-shift automobiles even approached Chevrolet's total production this year of over a half-million cars. Chevrolet is the world's largest builder of cars with modern 3-speed transmission—a position won and being held by providing quality at low cost.

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## New Developments in Pruning Peach Trees

(Continued from page 10)

for one year if only the pruning practice is changed, but the chances are that the fruit of succeeding crops will be quite small if the above warning is not heeded.

Growers who decide to stop heavy pruning and who prune moderately to lightly one year are so well pleased with the results that they carry the matter to extremes and the next year prune their bearing trees very lightly, if at all. This is generally disastrous. The pruning recommended in this article is light compared to the usual very heavy pruning, but is heavy compared to no pruning at all. Light pruning carried to the extreme with bearing peach trees would no doubt be worse eventually than heavy pruning. Note that in all recommendations given it has been pointed out that bearing trees should be thinned out moderately and that the limbs which are to continue the framework of the tree should be headed back lightly to moderately.

### Pruning Following the Loss of a Crop

When frosts have destroyed the blossoms or low winter temperatures have destroyed the buds of peach trees, many growers immediately prune the trees very heavily. It seems unwise to the writer to prune non-bearing trees heavily after such catastrophes. Since the crop has been lost, most trees, even without nitrogen applications, will make excellent growth anyway. Heavy pruning will simply decrease the size of the tree for the next year's crop and may cause such a rank, dense growth that comparatively few fruit buds will be formed. I have seen growers prune four-year-old trees so hard after a freeze that it took from two to three years to grow the tree to its original size. In the case of frosts particularly, a few blossoms may escape, and these are saved with light pruning. In such cases, if the injury has been quite general over a region, fruit brings high prices. The light crop might thus be very profitable if not pruned away. Such conditions prevailed in some lightly pruned Maryland orchards this season.

Older bearing trees can be pruned more heavily than young trees under such conditions. An opportunity is afforded for lowering the height of the trees somewhat and rebuilding with new wood. However, even with these trees, it is easy to do too much pruning. Many growers "dehorn" the trees, as shown in Figure 6. This practice has very little to commend it. If the trees happen to be in a weakened condition, many may die. If they are healthy, vigorous trees, a dense, rank growth will result, which may form few fruit buds and which will require heavy pruning the next year in order to shape the tree. (Summer pruning would probably help in such cases.) Crops will be materially decreased for two or three years and it will take about this long or longer for the tree to grow to its original size.

It seems better even with severely frozen trees to prune moderately. Trees headed back into two or three year wood generally produce shoots of moderate vigor, which form sufficient fruit buds for a fair crop the next year (see Figure 7). While the trees are lowered some, their bearing areas (height and width) are not reduced so severely as in the dehorned trees. After one year's growth the bearing surface should nearly equal its previous amount. Due to the absence of dense growth, the fruit is also of normal color on such trees.

Experiments in Maryland with peach trees headed back in various ways have given the following results:

	YIELDS OF PEACHES PER TREE	
	Dehorned trees. Pecks.	Moderately pruned trees. Pecks.
After one year .....	14	4
After two years .....	12	8
After three years .....	9	18
After four years .....	4	14
Total for four years .....	16	44
Average per year .....	4	11



for December, 1925

## Factors Influencing Early Bearing in Apples

(Continued from page 4)

mediate proportions of foods are fruitful.

## Nitrogen Supply Is Leading Factor

While the supply of other essential elements is important, the orchardist is principally concerned with the nitrogen supply. This is not only be-

is, then, one of how to secure carbohydrate accumulation in trees which are making a strong growth. The answer appears in large measure to be associated with the problem of getting better light conditions (Figure 2). The special practices which tend to hasten bearing will be discussed in an article

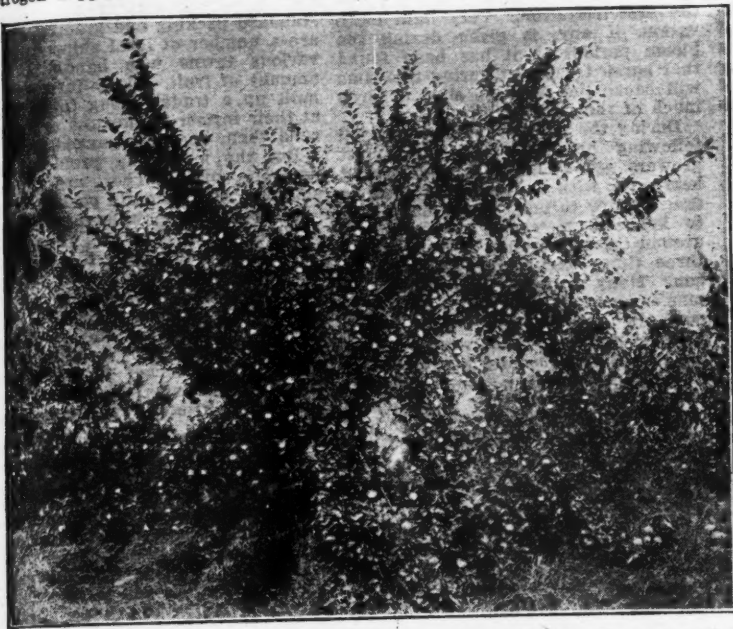


Figure 2.—This load of fruit on a young Spy tree resulted from keeping the upper part of the top open. Blossom buds formed where light conditions were good

cause of its importance in proteins but because the apple tree makes its growth at a season when there is very little naturally available nitrogen even in rich soils. It grows at a season of the year before bacterial action has freed the nitrogen for plant use. It is usually necessary to supplement the natural supply of nitrogen which the trees have.

It is a common error to consider that trees with large green leaves will have a high carbohydrate content merely because these substances are formed by green leaves. Accumulation depends both upon manufacture and utilization. It is usual for young, vigorous trees to be low in carbohydrates because of their large usage. Leaf surface and composition are not correlated.

## Fruitfulness Determined by Food Balance

The particular interest in plant composition is due to the fact that fruitfulness is dependent upon the balance in composition of the tree. It is necessary for carbohydrates to accumulate in order to have a thick growth and to bring about blossom bud formation. On the other hand, the mere accumulation of carbohydrates does not result in blossoming. This is illustrated by the fact that very poorly growing trees are non-productive, yet they have high percentages of carbohydrates due to lack of utilization. If the seasonal growth is extended, due to available nitrogen being supplied, larger and greener leaves are produced, growth of greater diameter is secured, and blossom buds are developed. In cases of excess nitrogen usage, carbohydrate accumulation is slight, the growth is slender, and blossom buds are not formed. This condition is also found on shorter growths where carbohydrates are limited, as by shade or use in producing fruit as with biennial bearing trees. In order to secure a balanced condition, trees in one condition may need one treatment whereas other trees may need the opposite treatment.

In the case of young non-bearing trees, light conditions are frequently the limiting factor in delayed bearing. In many orchards this is the result of an over-strong growth. In order to get large trees which have a satisfactory bearing surface, a large annual increase is necessary. The problem

which will appear in the January issue of the AMERICAN FRUIT GROWER MAGAZINE.

## The Marble Storage Investigations

L. M. MARBLE of Canton, Pa., wealthy manufacturer of coat hangers, is performing a noteworthy service in horticultural investigation. About 10 years ago he fitted out the Marble Laboratory for the investigation of storage problems. The equipment of this laboratory is quite complete, and there are extensive orchards in connection.

Mr. Marble is himself a well-trained scientist, being a graduate in science from Cornell University. He has, furthermore, employed technical experts to assist him in the work. A number of important publications have already been issued, which are recognized as authoritative in the scientific world.

Beginning on July 1, 1925, the Marble Laboratory became definitely associated with the Department of Horticulture of the Pennsylvania State College. Dr. R. D. Anthony of the Department of Horticulture is associated with Mr. Marble in the apple storage investigations. There are also two assistants from the staff of the Pennsylvania Experiment Station. At present the investigations center on apples, potatoes and carrots. Mr. Marble continues to bear all the expense of the project. He has been appointed Professor of Storage Research in the Department of Horticulture at a salary of \$1 a year.

Mr. Marble is performing a most commendable service. He is spending his money in the interests of agriculture without any thought of personal gain out of the venture. He will very likely secure results that will be of lasting benefit to the fruit and vegetable industries. His work will be watched with sympathetic interest by fruit growers all over the country.

Mary: "Why do you call your car 'Flapper'?"

Elmer: "Streamline body, swell paint job, quick pick-up, all kinds of speed, keeps me broke, warms up quick, and is always ready to go."

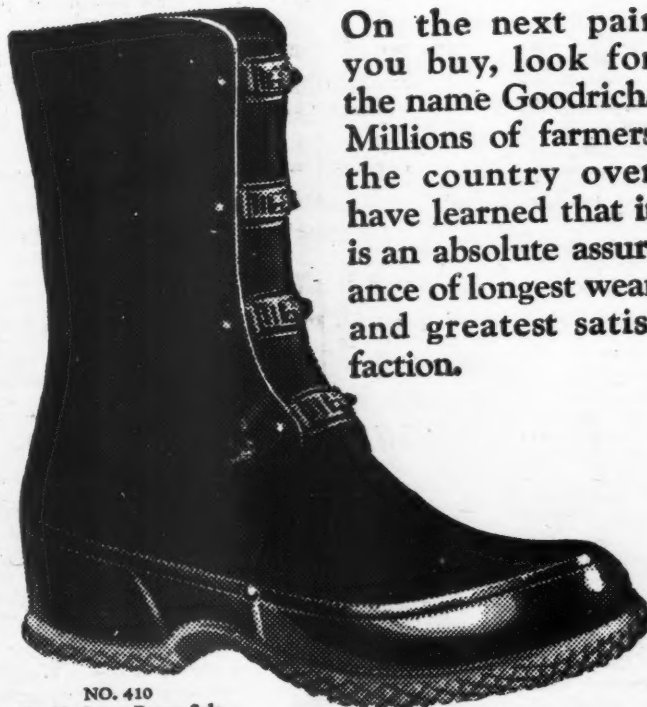
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## Can you tell a tree's age?



When you cut one, you count the rings around the trunk—there's a ring for each year.

## Can you pick the longer-wearing Gaiter?



NO. 410  
4-Buckle Gaiter, Brown Sole

On the next pair you buy, look for the name Goodrich. Millions of farmers the country over have learned that it is an absolute assurance of longest wear and greatest satisfaction.

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—this Club's sentiment**

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Richmond, Virginia  
Gentlemen:

One of my customers presented me, at Christmas time, with a half-pound tin of Edgeworth, out of appreciation for services rendered him during the probation of his father's estate.

In thanking him for the gift I told him that it appealed to me for two reasons—the spirit in which it was given, and the fact that he remembered the kind of smoking tobacco I have used for the past ten years. He made use of an expression which will interest you and which appealed to me.

The expression used was, "Us fellows who smoke Edgeworth never forget one another."

Very truly yours,  
J. V. Johnson.

Of course in this case, Edgeworth happened to be the recipient's ten-year favorite tobacco. But in other cases that we know of, the gift serves as a happy introduction to Edgeworth and a means of bringing an enthusiastic new member into the Club.



To make it still easier for "us fellows who smoke Edgeworth never to forget one another," the 16-ounce glass humidor jar and the 8-ounce tin are provided at Christmas time with appropriate wrappings. Each size contains Edgeworth Ready-Rubbed.

Rubbed and each is packed in a good-looking decorated gift carton printed in colors. Price—\$1.65 for the 16-ounce jar. The 8-ounce tins are 75c each.

Please ask your tobacco dealer for the Edgeworth Christmas packages. If he will not supply you, we gladly offer the following service to you:

Send us \$1.65 for each 16-ounce jar, and 75c for each 8-ounce tin to be shipped, also a list of the names and addresses of those you wish to remember, with your personal greeting card for each friend.

We will gladly attend to sending the Christmas Edgeworth to your friends, all delivery charges prepaid.

**PERSONAL:** Perhaps you yourself are not acquainted with Edgeworth. If so, send your name and address to Larus & Brother Company. We shall be glad to send you free samples—generous helpings both of Edgeworth Plug Slice and Edgeworth Ready-Rubbed.

Edgeworth is sold in various sizes. Both Edgeworth Plug Slice and Edgeworth Ready-Rubbed are packed in small, pocket-size packages, in handsome humidors, holding a pound, and also in several handy in-between sizes.

For the free samples, kindly address Larus & Brothers Company, 13L South 21st Street, Richmond, Va.

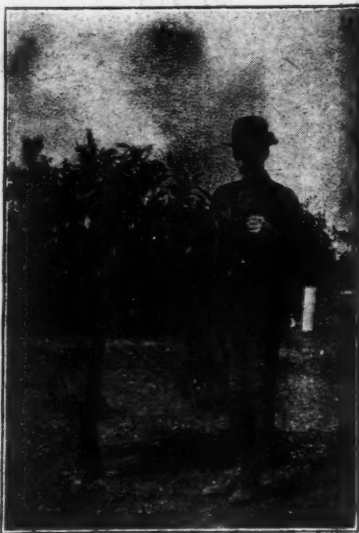
**To Retail Tobacco Merchants:** If your jobber cannot supply you with Edgeworth, Larus & Brother Company will gladly send you prepaid by parcel post a one- or two-dozen carton of any size of Edgeworth Plug Slice or Edgeworth Ready-Rubbed for the same price you would pay the jobber.

## Citrus Culture in the Rio Grande Valley

(Continued from page 3)

this fruit is not limited to the irrigated section.

Water for irrigation purposes is pumped from the Rio Grande River with large pumps and then distributed out through the various canals and ditches. Each section or community has its own plants, most of which are grouped as irrigation districts, and thus co-operatively owned and operated. In a trip along the river and up the Old Military Road, which was built by Col. Zackery Taylor during the Mexican War, one finds many of these larger plants and a large num-



The author, as county agricultural agent, inspecting a young grapefruit tree for insects

ber of small plants which are used to irrigate individual farms. The water contains much silt or sediment and helps to maintain the fertility of the soil.

The new settler has to learn the methods of handling and applying irrigation waters. The first lessons are rather difficult and nerve racking, but a few experiences teach one the methods that make him proficient.

### Time of Irrigation

The application of sufficient water at the proper time is one of the biggest problems the citrus grower has to face. It has been found advisable to irrigate in the spring, about the first week in March, which is just before the trees burst into fragrant bloom. This irrigation is usually a rather heavy one. Then, during the spring and summer months, frequent irrigations are given, as the condition of the ground and the trees indicate. In the past, many growers have waited until their trees showed wilting very badly before they would irrigate them. They are now learning to anticipate their need of water by studying the soil and thus avoiding the shock to the trees.

### Orchard Heating

A study of the weather bureau records shows that the thermometer has gone to 32 degrees or below many more times in the citrus sections of California than it has in the Rio Grande Valley. Thus the expense of orchard heating, which is such a large part of the cost of production in many sections, is cut materially.

### No Fertilizer Required

The soil in this delta of the Rio Grande is very fertile and crops grow in abundance. No fertilizer is used to grow citrus fruit and the rapidity of growth of trees has been startling to those from other citrus producing sections. In Florida and California, the growers spend much money annually for fertilizer. Absence of any fertilizer bill to the valley growers will help increase their profits.

### Cultivation

Because of the cosmopolitan population, there being farmers from every

state in the nation, the methods of cultivation are varied. However, no one cultivates their orchards during the winter months, so that the trees will be as near the dormant or resting stage as is possible. Most growers plow or cultivate their groves thoroughly just before the bloom period in the spring and usually just prior to the first irrigation. Very light cultivation, if any, is given during the bloom period, as it has been found that harsh treatment during this time will cause the trees to shed or drop much of the young fruit.

During the spring, summer and fall following the above cultivation, most growers give their orchards a light harrowing with either a disk, acme or drag harrow to maintain a mulch and to keep down weeds. The ground around the tree trunks is hoed two or three times during the growing season. Many growers are sowing summer cover crops, such as the Brabham cowpeas, and are receiving very excellent results. The winter cover crops used are usually bur clover or *Melilotis Indica*. The good results that they have secured with these crops pays more than several times their cost. Corn is often planted in the young grove, as it serves as a wind-break and gives some returns for cultivating the grove.

### Cultivation of Young Groves

The young orchards are handled much the same as the older groves except that the cultivation is more thorough and frequent. During the first three years in the life of a grove, no inter-crops or cover crops are allowed to grow within five feet of the tree rows. This permits the frequent use of the one mule cultivator and also the hoe. These and the proper application of irrigation waters are the most vital steps in handling a young grove.

The trees begin to bear commercially after they have been set out in the orchard four years. They reach full maximum yields at 10 years. In other citrus growing sections many trees can be found which are more than 50 years old, and doubtless the same will be true of the valley in

found located at the various towns in the valley, but an examination of them shows that they are controlled by several organizations. The Texas Citrus Growers' Exchange, which is a growers' marketing organization that is giving very satisfactory results, handles most of the fruit. All fruit is packed with special regard to standard packing and grading. There are a number of local shippers in the various towns who handle a large amount of fruit. Many farmers have built up a trade among their friends at their former homes and are able to send them specially packed fruit.

But the marketing problems have not been solved. There are too many shippers who maintain packing plants. The cost and maintenance of these must be taken care of. The growers have had many unfortunate experiences in co-operative truck marketing organizations, and thus they are slow to join any other organization. They realize the need of one very much, and with the present large number of marketing agencies it would seem time for the farmers to develop a competent organization for themselves.

### Some of the Growers' Problems

In addition to the marketing problem, there are several other problems which must be solved. In regard to the proper amount of irrigation water, there seems to be a wide difference in opinion among farmers. Those who prefer to use large amounts of water cause their soil to become oversaturated and thus under drainage must be provided. This problem is one which occurs in every irrigated section. Engineers are working on this phase of the subject at present, and the good results they have obtained seem to indicate that they will soon solve these problems.

More attention should be paid to the selection of the bud wood for nursery propagation, so as to secure higher producing trees and thus greater profits.

Another problem which appears likely to be solved within the next year is additional railroad facilities.

### The Valley's Future

There are a large number of unde-



Cowpeas as a cover crop in a three-year-old grapefruit grove

veloped opportunities in the valley, and with the advent of this section as one of the leading citrus producing areas, it is being brought more and more to the center of attention. The future of "God's Garden," as it is often called, seems very bright.

### Spraying

In the past there has been some difficulty in getting the majority of growers to properly spray their trees for the control of insects and diseases. Much good along the line of proper education of the growers as to the necessity, benefits and methods of proper spraying has been done by the United States Department of Agriculture, the Extension Service of the Texas Agricultural and Mechanical College, and others. The valley fruit in the future should have a very clean, bright rind, thus giving a proper covering for the sweet, juicy interior.

### Marketing

Citrus packing plants can now be

veloped opportunities in the valley, and with the advent of this section as one of the leading citrus producing areas, it is being brought more and more to the center of attention. The future of "God's Garden," as it is often called, seems very bright.

"Very, very sad, sir," said the doctor. "I greatly regret to tell you your wife's mind is completely gone."

"Well, I'm not surprised, Doc," returned the husband, "she's been giving me a piece of it every day for the last 15 years."—*Ex-Laughs*.

"Can you see figures in the fire, Jack?"

"Yes, dear."

"What figures can you see?"

"Fifteen dollars a ton!"—*London Weekly Telegraph*.



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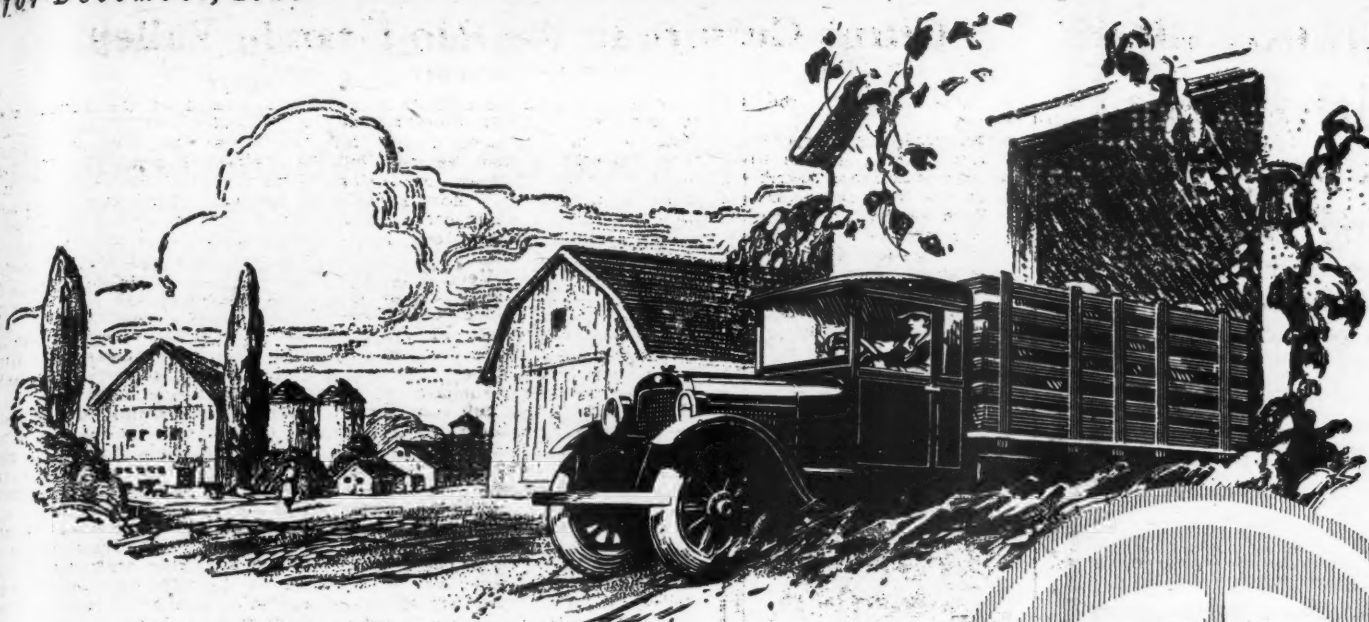
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## Growth

A typical example of Graham Brothers remarkable progress in the truck industry was the month of September.

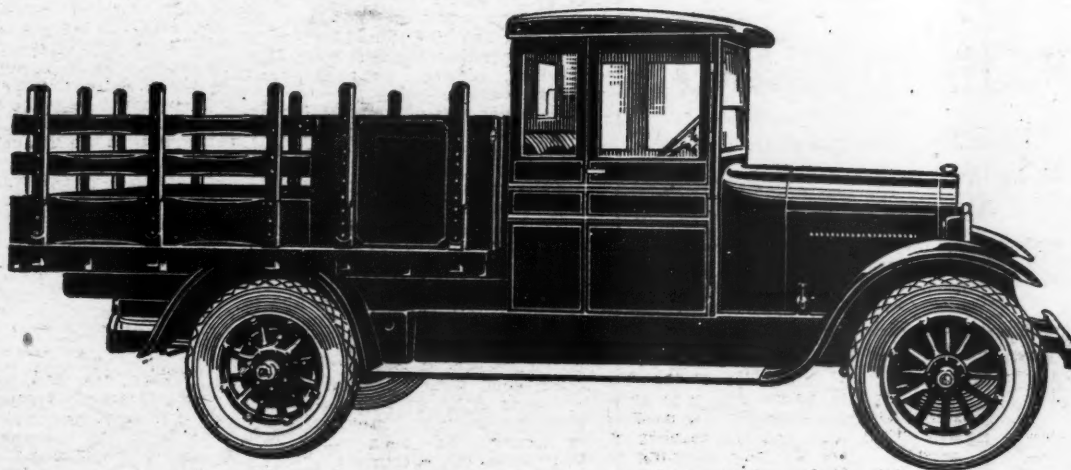
Production for this single month was 171 per cent of production for the entire year of 1921.

Astonishing growth, yet readily understood by owners, to whom Graham Brothers Trucks have brought vastly improved service simultaneously with a sharp reduction of costs.

1 Ton Chassis, \$995; 1½ Ton Chassis, \$1280; f. o. b. Detroit

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A DIVISION OF DODGE BROTHERS, INC.  
GRAHAM BROTHERS (CANADA) LIMITED - TORONTO, ONTARIO



# GRAHAM BROTHERS TRUCKS

SOLD BY DODGE BROTHERS DEALERS EVERYWHERE

## Don't Gamble With Pests!

When you try to raise good fruit without spraying or to get effective pest control with a makeshift outfit or a rig too small for your requirements, you are gambling with the pests—and with YOUR PROFITS!

Insure real pest control, big production, fancy fruit, and the most money for your crop by putting a BEAN Sprayer in your orchard. It provides the most dependable, economical, and satisfactory pest-fighting equipment available to the grower today.

Bean **DEPENDABILITY** and **ECONOMY** are the results of such features as Bean Porcelain-lined Cylinders that never wear out, Bean Patented Pressure Regulator which enables you to take out any valve in the pump in two minutes without stepping the engine or losing the pressure, Bean Trouble-less Ball Valves with thread-less cover and removable and reversible seats, Bean Pump without a stuffing-box or stuffing-box troubles, Bean Eccentrics instead of cranks, and many other advantages developed by Bean thru forty-one years of experience.

With two complete factories (Lansing, Mich., and San Jose, Calif.), a complete stock of parts at many important centers, and authorized dealers in all growing sections, we offer the best possible service to Bean owners everywhere.

### BEAN ORCHARD AND CROP SPRAYERS

Sign and send the coupon for complete catalog which illustrates and describes the entire Bean line of Hand and Power Sprayers.

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15 Hosmer St., Lansing, Mich.  
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Please send me your new Catalog  
and book on Better Spraying.

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#### Bean "Universal"

Designed for potatoes and other truck crops, but quickly converted into an orchard sprayer. Adjustable to any row.



#### Bean "Simplicity"

A thoroly high grade power sprayer for limited acreage. Capacity of 2 1/2 gallons a minute at 25 lb. pressure. Completely equipped.



#### Bean Power Duster

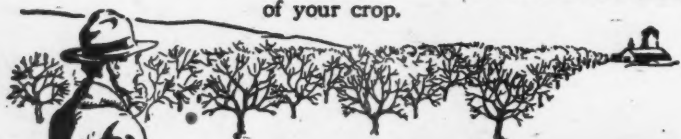
Mixes its own dust, thus cutting the cost of material in half. Simple, efficient, economical. For truck crops and orchard work.



Bean Giant Triplex, cap. 15 gal. a minute at up to 350 lbs. pressure.

## More Effective Dormant Spraying will make your 1926 crop more valuable

Now is the time to decide that you will use only the best spray materials for 1926. The difference in cost over cheap sprays amounts to very little—but involves hundreds of dollars in the harvest value of your crop.



### ORCHARD BRAND

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Lime Sulphur Solution  
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are products on which the far sighted grower pins his faith. He has learned from experience that their uniform high quality makes his spraying most effective. Are you doing the same?

The reputation and responsibility of this Company guarantees the 100% value of every Orchard Brand Product. And our packing is such that the materials reach you in A-1 condition.

Look for the Orchard Brand Shield—it is your protection.

At dealers everywhere. If yours cannot supply you, write us direct.

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Orchard Brand Products—Standard with American Fruit Growers Inc.

## Fruit Growing in the Southeast

By O. F. E. Winberg

### Location of a Satsuma Orchard

THE PROPER orchard site is a high location practically level, without any ponds, swamps or dense wind-breaks on the north, northwest and south sides. All locations where there is danger of cold, stagnant air (that are commonly known as pockets) should be avoided, as invariably under low temperatures trees planted in such places will not survive.

Rolling land is rather desirable for orchard purposes but with the extremely heavy rains prevalent on the Gulf Coast, the hillsides are subject to washing, which makes it expensive to cultivate, and it is hard to maintain soil fertility. For that reason, level land with sufficient slope to provide natural drainage is most desirable.

#### Soil

The Satsuma orange tree will grow in a variety of soils, practically anywhere on the Gulf Coast, provided there is good natural drainage. But there are some soils that are more desirable for Satsuma culture than others. The very light soil is, by no means, desirable because on such soil it is hard to maintain fertility unless a consistent policy of adding organic matter to the soil, either by using stable manure or the turning under of legumes such as cowpeas, velvet beans, etc., is practiced every year until the fertility in the soil has been built up. The most desirable soil for Satsuma culture is a sandy loam with clay bottom ranging from six to 12 inches from the surface. Satsumas grown on this kind of land will develop faster and bear heavier crops with less cost for fertility maintenance, than extremely light soils.

#### Preparation of Land

The prospective orchardist will do well if he considers his investment in an orchard from the standpoint of permanency. When he begins to clear his land of the trees and stumps, he is beginning to lay the foundation for an investment that will yield returns in proportion to the kind of management it receives. The more carefully the foundation is laid, the longer will the structure stand, provided, of course, that the superstructure is erected and managed with the same kind of care as the foundation. This viewpoint certainly has its practical application in the building of an orchard.

After the trees and stumps have been removed from the land, it should first be plowed shallow, then gone over with a disk harrow two or three times. The roots should then be picked out. The land should be plowed again, deeper than the first time, then pulverized, plowed, sub-soiled, and pulverized again.

The reader will object to this, saying it is entirely too much work, but it is really not a question of how much work we do as what results we are going to get. It has been the experience of the writer that careful preparation is well rewarded by the generous response of the plants. The above preparation of the land should be made during the winter. In the spring this land should be planted to velvet beans. The beans should be planted rather close, about two feet between the rows. Fertilize at the rate of about 300 pounds to the acre, with a fertilizer analyzing 10 per cent phosphoric acid, two per cent of ammonia and two per cent of potash. The beans should be planted the latter part of April, giving them the entire season for development. A rather luxuriant growth may be expected with such preparation as referred to above. In the fall, when the beans have reached maturity, they should be plowed under, and the land should again be disked and harrowed. The land will then be ready to re-

ceive the trees during the early winter.

Some may object to this method and say that the year is lost, but this is not the case. This thorough preparation (providing the land with organic substance prior to the trees being planted), will result in quicker development of the trees and earlier bearing, and when the trees do come into bearing they will yield more than if they were planted without such preparation. In fact, the future development of the orchard will more than repay for the money expended, the care, and the time spent in such preparation.

Wherever a new orchard industry has been started, the trees have been planted closer than they should have been. The prospective planter of a Satsuma grove should not commit this mistake. The Satsuma tree should not be planted closer than 25 feet apart each way.

#### Plant Carefully

Planting should be done thoroughly. If all the preparation has been thorough up to the time of planting, and carelessness is exercised in planting the trees, little is gained by the careful preparation.

The holes should be dug 24 by 24 inches in width and about 20 inches deep. In planting the trees, the roots should not be exposed unnecessarily, because they are very tender and in a comparatively short time considerable damage may be done. When the trees are transported from a nursery that is located a considerable distance from the field where the trees are to be planted, they should be removed from the box or packing immediately upon their arrival and heeled-in in the field. This heeling-in should be done thoroughly. The soil should be well tamped so that the air may not reach the roots.

When the planting commences, only a small number of trees should be taken out at a time. These trees should be wrapped in a damp sack and carried by the planter. The planter will do well to gauge his planting according to weather conditions. Immediately after a rain is a good time to plant, because the soil is damp and there is less danger of the roots drying out. However, if the trees must be planted during dry weather, watering is very beneficial. The trees should be planted and the roots covered and at least three-fourths of the hole filled with dirt. Then apply about two or three gallons of water. After that has been absorbed, new dirt should be put in the hole and well tamped so as to exclude any possibility of the presence of air channels. If it seems desirable to water the trees after planting, the water should never be applied against the trunk of the trees but rather further out so as to moisten the soil around the roots. In case the water is applied near the trunks, it will follow down the tap roots and the larger crown roots, leaving channels admitting air. This may result in injury to the plant rather than good. After water has been applied, fresh dirt should be put on top so as to preserve the moisture.

"Auntie, will you please wash my face?"

"Why, Bobbie, I thought you could do that yourself?"

"Well, I can, but I'd have to get my hands wet and they don't need it."—Ez.

"They tell me Simpson had quite a scrap with his wife last night."

"What was wrong with him?"

"I didn't hear."

"Liquor, do you suppose?"

"No, she licked him."—Ez.



# New Glandated Vitamines Bring 5 Times as Many EGGS

## Free \$1.00 Package to Double Your Poultry Profits



### GLAND TREATMENT FOR HENS RESULT IN MANY MORE EGGS

Scotch Professor Says Production  
Is Increased Fourfold  
Within Three Months

(By the Associated Press)  
LONDON, July 1.—Old hens for pot boiling purposes may disappear from the markets now that Dr. F. A. E. Crew of Edinburgh university has assured scientists that by administering thyroid to chickens he can make hens lay eggs as long as they are able to cackle.

The world is indebted to Dr. Crew for the gland treatment of the domestic hen which should augment the production of eggs. Dr. Crew observed that hens which had averaged 25 eggs per year for four years beat this figure within three months after being treated with the glands and went beyond the 100 mark inside of a year.

### Read What Users Say:

**Tube Full of Eggs**  
Dear Sir: I sure have had good luck with my hens this year. I was getting 4 and 5 eggs a day from 27 hens. Now this year since using your tablets I get 24 eggs a day. I got about two tube full of eggs this winter, and spring. It sure did increase my income. I sold a large number of eggs this year for cash money—besides keeping the table in eggs and also paying the grocer's bill in exchange for eggs. I shall be glad to get more of the tablets. They did my chickens more good than anything I ever used.—Susie Mann, Choctaw, Oklahoma.

**Doubles the Eggs**  
Dear Sir: The tablets were wonderful. My hens had the Run when I started feeding them. They built my flock right up besides doubling my egg yield.—Mrs. J. R. Keating, Wheaton, Kansas.

**17 Eggs a Day!**  
Dear Sir: I have tried Poultry Vitamines for laying hens and find it just as represented. I have 25 hens—was not getting an egg and after feeding Vitamines I got 17 eggs a day.—Jesse G. Dunkle, 1009 Dakota Ave., Gladstone, Mich.

**6 Dozen a Week**  
I am just more than pleased with results that your tablets have done for my chickens. I can say my hens were good for nothing before I started your tablets. Now am getting 5 to 6 dozen of eggs a week and am expecting more. It is only two weeks since I began the treatment. Wishing you a bigger business, I am—Mrs. J. Padolecki, R. 2, St. J. Adkins, Texas.

**5 Times as Many Eggs**  
Dear Sir: I am letting you know that the tablets did wonderful. I was not getting from a flock of 60 hens 1/4 dozen eggs a day. Since feeding them only one week my hens have increased to 2 1/2 dozen eggs. I think your tablets are fine.—Mrs. H. D. McReynolds, R. 4, Adairville, Ky.

**Keeps Family on Eggs**  
I tried the box of poultry vitamines and I want to say that I was pleased with the results. I had only six hens and after giving the tablets as directed my hens began to lay—and for a month now these six hens have kept a family of five in eggs.

Our hens are the only ones laying eggs. They look well and eat well and I think it is due to the tablets that gave them a start.—Miss L. Russell, Montreal, N.C.



Yes, it's true, and you can prove it at my risk and expense. Last season a million poultry raisers heard about Glandated Extracts for the first time.

Results were almost unbelievable. So simple—so easy—so cheap—no fuss—no bother but EGGS, EGGS, EGGS.

"The tablets did wonderfully," writes Mrs. H. D. McReynolds of Adairville, Ky. "I was not getting half a dozen eggs a day from a flock of sixty hens. Since feeding them one week my hens have increased to 2 1/2 doz. eggs." Hundreds of other amazing testimonials. Now I want you to try a dollar package free.

## Results Guaranteed

Divide your flock in two parts and make an actual test of Glandated Vitamines. This will give you absolute and unescapable evidence. Unless you find that the one flock to which you feed Glandated Vitamines lays more eggs, even five to one, compared to the other flock, your money will be returned without question.

Positive money back guarantee with every package if your hens do not lay more eggs 48 hours after using Glandated Vitamines. Just send a postal and your money will be returned without question or quibble. Think of it! This is your opportunity to try out this

marvelous, scientific treatment without any cost to you unless you get the results that you expect. You are to be the sole and only judge. This is the most liberal offer ever made. It is backed by the entire resources of the Poultry Vitamines Company.

## Start Hens Laying in 24 Hours!

Greatest poultry profit maker ever known. Science combines marvelous glands—vitamines, proteins, and other extracts. Just crush these tablets into drinking water. Makes feathers fast and countless eggs because the right elements are supplied. Eggs all through and after moult without strain on hen. Hens lay right through coldest weather when eggs are scarce and prices are high. Dozens and dozens of eggs. No

more loafers. Experiment stations amazed. Even conservative Scotch scientists say: "Extracts make old hens lay." See results for yourself. Take no one's word. Get action in 24 hours. Hens start laying—improve condition—full of life. Government stations report that hens fed vitamines laid 300 eggs against average of 60 eggs. You don't need a big flock to make money. Double their yield with glandated extracts.

## \$1.00 Package FREE!

Here is a smashing offer that means many dollars in your pocket. Just mail coupon below and you will be sent at once TWO regular One Dollar Size packages of GLANDATED VITAMINES. Pay your postman only \$1, plus 17c postage, when he delivers BOTH packages. The Extra Package is yours FREE. Sell one package to a friend for a dollar

and thus get your supply for nothing. You can't possibly lose on this great offer. If your hens don't start laying within 48 hours, if your egg pile doesn't grow by leaps and bounds, or if you are not 100% delighted with GLANDATED VITAMINES for any reason your money will be refunded without question. What offer could be fairer?

# Send No Money

## Mail Coupon TODAY

Do figures mean anything to you? Do 300 eggs bring more money than 60? The answer is very plain indeed. So send for GLANDATED VITAMINES right now. Remember—this product contains the essential elements that act upon the Egg Producing Gland. It provides the precious vitamines that are so essential to correct metabolism. It's guaranteed to give satisfaction or your money back. Act NOW! Don't delay! You risk nothing! Get lots more eggs right now while prices are going up. Send coupon today if you want more eggs and more profit than ever before.

**The Poultry Vitamines Co.**  
837 Spruce St., Dept. 461 Philadelphia, Pa.

Poultry Vitamines Company, Dept. 461  
837 Spruce Street, Philadelphia, Penna.

Send me TWO regular One Dollar size packages of GLANDATED VITAMINES. I will pay postman only \$1, plus 17c postage, on delivery of BOTH packages. You agree to refund my money at any time within 30 days if I am not entirely satisfied with my increased egg yield.

Name.....

Address.....

(If you prefer, you may send \$1 with the coupon and we will proper postage. You will get the shipment sooner, as C.O.D. packages often take longer in the mail.)





### San Jose Scale Conquered!

This persistent pest is no longer a problem. It is quickly, safely, and effectively controlled by the use of Volck, an oil spray of a new type, which has introduced an entirely new standard of effectiveness and safety in the control of insect pests.

#### A Safe Summer Spray

Volck can be applied in summer as well as in winter, whenever the scale appears, without injury to fruit or foliage. It not only kills the pests and cleans up the trees, but also the fruit itself of the scale (even the red spots disappear), insuring quality and fine appearance.

It has been used as a summer spray for two seasons in the famous Wenatchee and Yakima Valleys, Washington, where it has produced amazing results on San Jose scale and codling moth, and has been the means of salvaging many thousands of dollars worth of apples that would otherwise have been unmarketable.

#### Used on Strawberries

Volck has also given highly satisfactory control over red spider on strawberries, and over scale and other insect pests on very tender plants where the high hazard of burning formerly made control extremely difficult.

In the citrus groves of Southern California and Florida the use of Volck has revolutionized pest control methods, and has given amazing results even over the so-called resistant scales, which formerly resisted all efforts at control.

Write for booklet and full information on this new and better way to control insect pests and insure clean trees, big production and fancy fruit.

**California Spray-Chemical Co.**  
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Yakima, Washington; Orlando,  
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**Casc Grape**  
A new wine-red grape of Catawba and Concord parentage. Ripens early and so rich in sugar be eaten two weeks before fully ripe. Large grapes on good size bunches. Healthy and prolific vines.

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Very large, gourd shaped pear of beautiful golden-russet color. Juicy, melting, and deliciously flavored. A treat at home. Commands top market prices, selling for 10 cents each at fancy fruit stores.

**Peaches, Plums, Cherries**  
—in many varieties as well as apples and pears. Shade and ornamental trees, perennials, dwarf fruit trees and bush fruits galore.

**Flowering Shrubs and Vines**  
—roses, hedges, dwarf trees, evergreens, all are included in the more than 300 varieties.

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**CO-OPERATIVE** marketing and packing corporations should be released from the so-called "breach of contract" theory in their contract relations with members. While it is true that contracting members do have a separate and distinct contract relationship with the corporation which is independent of their stock or membership contract, yet, as a matter of fact and practice, the two are closely united in one greater transaction. By permitting members to exercise the rights ordinarily arising from contracts, corporations often find themselves with several members attempting to "scuttle" the ship by relying upon the "breach of contract" theory. According to this theory, if one party to a contract fails in any particular in carrying out his part of the agreement, the other party is entitled to use such breach to obtain a recession of the contract. Consequently, if a corporation makes a mistake in the handling of its business, the member affected can jump his contract and leave the other members to bear the burden caused by his unceremonious departure. Such a situation was not contemplated when the co-operatives were launched. The relationship of members or stockholders was established to give the body an opportunity to obtain funds for capital investments and to definitely fix voting and property rights. A far better position to hold is that the member must exercise the right accorded every member or stockholder of a corporation, namely, to proceed against the corporation and compel it to carry on its operations in a correct and legal manner. Such a procedure will not only be beneficial to the one member, but will react in favor of all members, while jumping contracts injures all remaining members and the corporation, per se. We hope that the courts of California will "see the light" and follow such a train of thought, for the application of the breach of contract theory is not suited to co-operatives in their present form.—Bruce W. McDaniel in *Citrus Leaves*.

**THE CALIFORNIA Fruit Exchange**, Sacramento, Calif., is handling deciduous fruits, especially grapes. It operates in every section of the state and serves about 6500 fruit growers. During 1924 it marketed 8485 cars in 315 markets in the United States, Canada and Cuba, with gross sales of \$14,994,554. Fifty-four per cent of the cars were sold at auction, and 46 per cent at private sale. Due to a short crop, the shipments were 2450 cars fewer than the previous year. However, the gross receipts per car averaged \$1767, or \$197 more per car than in 1923. The membership consists of about 80 local associations and 20 "grower shippers," this term being used to designate a grower having sufficient tonnage to operate as an association.

Each local unit is incorporated and manages its own local affairs. Each assembles, grades, packs and loads its fruit, which is then turned over to the California Fruit Exchange for distribution and sale. So far as possible, each local attends to its own financing, but the exchange lends money to locals at the current rate of interest when necessary, and also aids by purchasing in quantity box materials and other supplies.

All the local associations are encouraged to build up reserve funds sufficient to give them standing with the banks. Associations which pack

the fruit of their members in central packing houses, charge for this work the usual rate announced by commercial firms. With careful management they are usually able to perform the service for less than the price charged and a substantial saving is made. It is stated that the association in the Fresno district saved on packing alone in 1919, \$123,815; in 1920, \$153,799; in 1921, \$174,657; and in 1922, \$163,662. Appreciable savings are often made in loading charges, and such savings go toward paying for packing houses, loading sheds, and other equipment. A number of the local associations have their own supply departments and purchase spraying materials, machinery, and other requirements.

The exchange was organized in 1901 as the California Fresh Fruit Exchange. That year it shipped 237 cars of fruit, which brought a gross price of more than \$200,000. By 1906 the shipments had increased to 515 cars which sold for \$566,000. As the expanding business required more money and increased facilities, the exchange was reorganized in February of 1907 on a capital stock basis, and the name changed to California Fruit Exchange. The principles and policies were unchanged but increased facilities were provided and a substantial business foundation secured. Capital stock to the amount of \$100,000 was authorized, in shares of \$100 each. No individual may hold more than two shares, in order to prevent any semblance of control and to keep the stock as evenly distributed as possible.

The affairs of the organization are supervised by a board of 17 directors, each of whom must be a bona fide fruit grower. The long term contract is not used, and any grower may withdraw at the end of any season if he desires.

According to the plan of financing, all growers are charged seven per cent of the gross delivered price for handling and marketing the fruit. The actual cost of doing business has not exceeded three per cent and the difference between the seven per cent and the actual cost is placed in a "Withholdings Account" which constitutes the working capital of the organization. This capital is refunded to the growers over a period of five years, approximately one-half being returned during the year immediately following the crop season, and the other half at the expiration of five years. The "Withholdings Account" at present contains \$1,762,122.—*Agricultural Co-operation*.

**THE GEORGIA Peach Growers' Exchange** held its annual meeting in Macon early in November. Reports of officers showed a very satisfactory state of affairs. A debt of \$17,754, which accumulated during 1924, has been paid off. The satisfaction of members is indicated by the fact that during October, the month for canceling contracts, only 26 growers canceled their agreements, whereas nine new members were secured.

A resolution was passed expressing approval of the work of the officers and directors during the past year.

Manager W. C. Bewley in his report reviewed the work done to date and made recommendations for the future. He stated that the poor marketing service in 1924 should not be regarded as a reflection against co-operative marketing but that it should spur every member to do his part so that the conditions would not be repeated. Mr. Bewley recommended that the as-

paragus growers in Georgia and South Carolina be lined up, if possible, with the peach growers' exchange. Such a move would not only benefit the asparagus growers but would help to lower the overhead expense of the exchange by giving it products to market over a longer period. Last year there was considerable conflict between the asparagus growers of the two states, and it is believed the exchange could be of help to them.

According to Oliver I. Snapp of the government laboratory at Fort Valley, some damage was done to buds by drought, but there are still enough buds left, in his opinion, to insure a fair crop, provided good cultural methods are used by the growers.

The following officers and executive committee members were elected: M. Felton Hatcher, of Macon, President; J. A. Bird, of Fort Valley, First Vice-President; J. R. Atwater, Thomaston, Second Vice-President; and W. C. Bewley, Macon, Manager, Secretary and Treasurer; Executive Committee members: J. H. Baird and D. C. Strother, Fort Valley; M. F. Hatcher, Macon; J. A. Middlebrooks, Haddock; B. B. Murphy and E. M. McKenzie, Montezuma; P. J. A. Berckmans, Mayfield; J. W. Hodge, Elko; J. R. Atwater, Thomaston; and C. W. Matthews, Woodland.

**THE OHIO Farm Bureau Federation** is developing a method of financing for co-operatives which will be of interest to leaders in other states. On September 3, 1925, the Ohio Farm Bureau Corporation was incorporated for the purpose of offering financial and managerial services to Ohio co-operatives. It is planned to set up organizations of similar type in each county of the state. Such corporations have already been organized in nine counties. The state corporation will sell stock and bonds to the general public. The money received from the sale of same will be loaned to the county service companies and to state co-operative associations. The county organizations will advance money to local associations, taking the securities of locals in return. It is planned to have the state association hold a large part of the stock of the county organizations. The county and state financing plans are to be co-ordinated. The general public will be offered only the stock and bonds of the state association.

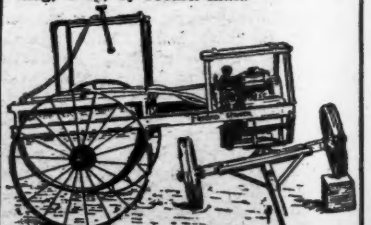
**THE SUNLAND Sales Co-operative** Association of Fresno, Calif., which serves several California fruit marketing organizations, exported 17,223 tons of Sun-Maid raisins during July and August as compared with 9481 tons for the same months in 1924. The Sun-Maid raisins are being marketed over territory extending from Latvia and Finland to Siam and Sumatra, and from Argentina to Alaska.

With the exception of one special man, the foreign business is handled in the Fresno office by the domestic sales organization. This plan is "designed to capitalize the momentum of the existing domestic organization and also to bring into export work the

## PROFIT OR LOSS

Which does your 1925 fruit crop show?  
If a loss, lack of thorough, timely spraying may be the reason.  
If a profit, no doubt efficient spraying is the reason.

Let us tell you about the easiest, fastest, most dependable, most adaptable sprayer to use for FRUIT PROFITS. A card from you will bring our latest catalog, G-25, by return mail.



**"Friend" Manufacturing Co.**  
110 East Ave., Gasport, N. Y.  
"You'll always be glad you bought a 'Friend'."



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best brains of the enterprise in the most effective way. It is a means of decreasing sales expense and increasing efficiency."

Headquarters for the Far East are at Shanghai and Yokohama. From the latter port supplies are distributed to Japan, Formosa and Korea. Shipments to Shanghai are forwarded to India and Siberia. South and Central American markets are covered by resident agents.

**MEMBERS** of the Arizona Citrus Growers' Exchange of Phoenix will receive a refund of about 20 cents per hundred on last year's crop as a result of economical methods of packing. A charge of 90 cents was made originally and the actual cost was about 70 cents. A small deduction was also made for a reserve fund and another small charge was made for selling fruit locally. The rebate is expected to range between 20 and 22 cents per hundred. Fruit to the value of about \$150,000 was sold locally.

The first car of grapefruit was shipped on September 28 and 15 cars had been shipped to October 7. A ready market was found on the Pacific Coast. The first pool was for 15 days and the second ran from the end of the first until the first Marsh seedless shipments were made. The first Marsh seedless pool is to run until the first of January and later pools for 60 days each. Some Navel, Jaffa and Valencia oranges are grown and these will be handled chiefly in pools lasting 30 days. The first lemon pool will run until December 1, the second until February 1, and all later receipts will be included in a third pool.

### Coming Horticultural Meetings

**ANNUAL** meeting Washington State Horticultural Association, Yakima, November 30, December 1-2. Secretary, J. I. Griner, Olympia, Wash.

**Annual** meeting Iowa State Horticultural Society, with affiliated societies, Ames, December 1-2. Secretary, R. S. Herrick, State House, Des Moines, Ia.

**Annual** meeting Michigan State Horticultural Society, Coliseum Building, Grand Rapids, December 1-3. Secretary, H. D. Hootman, East Lansing, Mich.

**Second bi-annual** fruit growers' short course, University of Kentucky, Lexington, December 1-4. Kentucky State Horticultural Society and the College of Agriculture co-operating. Secretary, Ben E. Niles, Henderson, Ky.

**Annual** meeting Minnesota State Horticultural Society, Court House, Minneapolis, December 1-4. Secretary, R. S. Mackintosh, St. Paul, Minn.

**Annual** meeting Virginia State Horticultural Society, Staunton, December 8-10. Secretary, W. B. Massey, Winchester, Va.

**Fifty-ninth** annual meeting Kansas State Horticultural Society, Kansas City, Mo., December 8-10, in conjunction with meetings of American Pomological Society and Central States Horticultural Exposition. Secretary, James N. Farley, Hutchinson, Kans.

**Annual** meeting Missouri State Horticultural Society, Kansas City, Mo., December 8-10, in conjunction with meetings of American Pomological Society and Central States Horticultural Exposition. Secretary, Patterson Bain, Jr., Columbia, Mo.

**Annual** meeting American Pomological Society, Kansas City, Mo., December 8-10, in conjunction with Central States Horticultural Exposition. Secretary, H. C. C. Miles, Milford, Conn.

**Central States** Horticultural Exposition, Convention Hall, Kansas City, Mo., December 8-10. Secretary George W. Catts, Kansas City, Mo.

**Annual** meeting Horticultural Society of Northern Illinois, Dixon, December 9-11. Secretary, R. A. Green, Ottawa, Ill.

**Annual** meeting New Jersey State Horticultural Society, Chalfonte-Haddon Hall, Atlantic City, December 9-11. Secretary, H. H. Albertson, Burlington, N. J.

## This is the Mechanical Power Age

**EVEN** the airplane is now being experimented with to aid agriculture. Out west, the orange groves have been sprayed by the airplane. Down south, an airplane has successfully done the work of many ground dusting machines in applying arsenate to kill the boll weevil in cotton.

These are extreme signs of the times. They are not everyday farming methods, but they serve to remind us of the tremendous changes that are coming about in agriculture and that affect the prosperity of every man on his farm.

The mechanical power age is here. The owners of close to a million farms are letting brains and power farming equipment take over the work of hired hands, horses, and limited horse-drawn tools. They are seeing to it that one man doubles and triples his day's work. As a result, the Department of Agriculture shows that there were 109,000 fewer hired men on the farms in 1925 than in 1924. Millions are saved to the farmers in wages; yet production is greater than ever before. Producing costs are reduced and extra profits are the reward of farmers who have become power farmers.

**McCormick-Deering** machines seek always to be ahead of the times. It is the business of **International Harvester** inventors and engineers, trained in the field and helped by the experience of 94 years of farm equipment progress, to equip the farmer with time-and-labor-saving, yield-increasing, money-making farm machines.

Today the **McCormick-Deering** dealers are providing the farmer with 2 and 3-furrow plows, 2-row cultivators, 10-ft. binders, harvester-threshers to cut and thresh at one operation, pickers to pick and husk the standing corn, big-scale hay-harvesting tools, and a long list of other efficient machines bearing the old dependable name, "**McCormick-Deering**."

These wonderful machines are made for tractor power. **McCormick-Deering** tractors have opened the way to great developments in modern farming. They are not only perfected for drawbar and belt work but they have shown the way to power take-off operation by which the tractor engine runs the mechanism of field machines, relieving the bull wheel of its heavy load, doing away with slipping and clogging, and increasing efficiency. **McCormick-Deering** machines and power make the combination for profit. Together they will lead the way to prosperity during the new year, 1926.

**INTERNATIONAL HARVESTER COMPANY**  
of America  
(Incorporated)  
606 So. Michigan Ave. Chicago, Ill.

## Profitable Farming Starts at the Store of the McCormick-Deering Dealer



**Sixty-fifth** annual convention Indiana Horticultural Society, Claypool Hotel, Indianapolis, December 10-11. Secretary, Monroe McCown, Lafayette, Ind.

**Annual** meeting Illinois State Horticultural Society, Urbana, December 16-18. Secretary, H. W. Day, Springfield, Ill.

**Annual** meeting Oregon State Horticultural Society, Medford, December 16-18.

**Annual** meeting Connecticut Pomological Society, Hartford, December 17-18. Secretary, H. C. C. Miles, Milford, Conn.

**Annual** meeting Ozark Fruit Growers' Association, Monett, Mo., January 5-6, 1926. Secretary, J. W. Stroud, Box 150, Rogers, Mo.

**Annual** meeting Massachusetts Fruit Growers' Association, in connection with the annual Union Agricultural Meeting, State Armory, Worcester, Mass., January 5-7, 1926. Secretary, W. R. Cole, Amherst, Mass.

**Thirty-seventh** annual meeting South Dakota Horticultural Society, Sioux Falls, January 5-7, 1926. Secretary, W. E. Hansen, Brookings, S. D.

**Annual** meeting Rhode Island Fruit Growers' Association, Providence, January 8, 1926. Secretary, R. W. Bowen, Apponaug, R. I.

**Annual** meeting New York State Horticultural Society, Rochester, January 13-15, 1926. Secretary, Roy P. McPherson, Le Roy, N. Y.

**Annual** meeting Pennsylvania State Horticultural Association, in connection with State Farm Products Show, Harrisburg, January 19-21, 1926. Secretary, S. W. Fletcher, State College, Pa.

**Annual** meeting Ohio State Horticultural Society, in connection with Annual Farmers' Week Program, Ohio State University, Columbus, Ohio, February 1-5, 1926. Secretary, F. H. Beach, Columbus, Ohio.

### When Old Fruit Trees Do Not Bear

By J. Marshall Porter

**IF YOU** have any fruit trees on the farm that do not bear as well as they used to, you may find the trou-

ble in the same place as I found it a few years ago.

We had four good old apple trees that used to bear very heavily. They stood in a corner of the orchard that was hard to get into with a plow, thus we stopped plowing that corner, and a tough heavy sod covered the ground. Soon the trees that had been the pride of the orchard began bearing only small knotty fruit, and very little of that; the trees looked like they were going to die.

Then one year we decided to plow that corner for a potato patch, never thinking what good it would do those trees. The next year they bore heavier than they had ever borne before. Since then we have cultivated our orchard more often, and the fruit of all the trees has been much better.

Teacher: "Johnny, will you define the genders?"

Johnny: "There are two genders, masculine and feminine. Masculine is divided into two parts, temperate and intemperate; and feminine into torrid and frigid."—Current Topics.



## Scrapping

worn-out knowledge—

YEARS ago this statement—

*"Ammonia must be transformed to nitrate form before it can be used as plant food"*

was generally accepted. We know better now. Research has shown that practically all crops feed directly on nitrogen in ammonia form as well. Nitrification may occur but it is not essential.

This statement, too,

*"Nitrate nitrogen acts more quickly than ammonia nitrogen"*

is still often heard, but here again research has shown that young plants take up the ammonia nitrogen as rapidly as the nitrate nitrogen, if not more so.

Arcadian Sulphate of Ammonia furnishes nitrogen in ammonia form, which is directly and immediately available as plant food for the growing crop. There is no better or quicker-acting nitrogenous fertilizer, especially for fruit and vegetables, where shipping quality and uniformity count for so much.

Write for booklets on fruit and vegetable growing.

## ARCADIAN Sulphate of Ammonia

THE BARRETT COMPANY, AGRICULTURAL DEPARTMENT  
New York, N. Y.

Atlanta, Georgia    Berkeley, Calif.    Medina, Ohio

The Barrett Company (address nearest office)

Please send me sample package of Arcadian Sulphate of Ammonia.

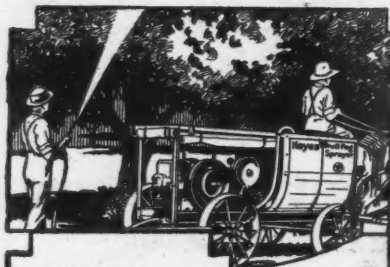
I am especially interested in.....

(Write name of crops on line above)

and wish you to send me bulletins on these subjects.

Name .....

Address .....



## FRUIT-FOG



Full line  
of  
POWER  
TRACTION  
and HAND  
SPRAYERS

Hayes Triplex Model. Automobile type construction, pump cast in a single block, gives greater strength, less weight and fewer parts. 300 pounds guaranteed pressure. Delivers 8 to 15 gal. per min. Completely equipped, 300 gal. tank, truck, hose and guns. Porcelain cylinders optional. Write for prices.

## Hayes Fruit-Fog Sprayers Reduce Spraying Costs

Economy in spraying is possible only with efficient spraying equipment. A sprayer that saves on time and labor at the expense of thoroughness actually costs you more money. To be efficient, a sprayer must combine speed and thoroughness, mechanical excellence and low operating cost.

### Hayes Fruit Fog Sprayers are truly efficient.

Guaranteed high pressure and large capacity cut your time and labor expense just as mechanical perfection assures low operating costs. Fruit Fog requires less solution and wipes out your losses by killing pests that other sprays cannot reach.

Investigate the Hayes Sprayer line. It includes 50 different models—one or more of which will exactly fit your requirements. New sprayer folder just off the press sent free upon request. Send for your copy today.

Hayes Pump & Planter Co.  
Dept. 09, 809 Sixth St., Galva, Ill.

## Markets and Marketing



THE UNITED STATES Department of Agriculture has developed a definite program for standardizing fruit and vegetable containers. The principal object is to eliminate the confusion which now exists on account of the wide variety of containers in use.

There are serious discrepancies in the legislation of different states at the present time, according to the department. Different states require containers of different size and shape. Many states also have weight laws which are in conflict with each other and with the federal law.

For the most part, the weights are based upon the heaped measure. The statutes as a rule prohibit the sale of standard baskets as bushel containers unless they contain the legal weight. This circumstance results in unnecessary re-labeling of the weight or measure.

As one of the first steps in the movement, the Department of Agriculture believes that the various states should be requested to repeal their weight per bushel laws as applied to fruits and vegetables. Shipping containers which are not now standardized should be eliminated. All non-essential or short measure containers should be standardized as to volume and dimensions.

The investigation of the department has shown that no definite program of standardization was in mind when many of the state laws were passed. Only Indiana and Texas have passed container laws based on a definite program which is in harmony with that developed by the United States Department of Agriculture.

The survey has shown that the northwestern apple box has been adopted as a standard container by 14 states and the District of Columbia. A mimeographed circular can be obtained from the Department of Agriculture which describes the containers standardized by each state. It also gives the title and address of the enforcing official.

THE HARVESTING of apples in the Shenandoah-Cumberland district was completed about November 1. The heaviest shipping period occurred during the first week in November. Rainy weather delayed picking this fall, and there has been considerable off-grade stock as a result. Some fruit was sold in bulk.

Parts of four states comprise the Potomac-Shenandoah-Cumberland district. The following table shows the shipments from the district and from each state to October 25 of this year and to the corresponding date last year:

Carlot Shipments of Apples from Potomac-Shenandoah-Cumberland District			
State.	This season to Oct. 24.	Last season to Oct. 25.	
Virginia	4,531	7,574	
West Virginia	2,379	2,143	
Pennsylvania	1,130	568	
Maryland	842	876	
Total	6,882	11,161	

The export demand has recently showed renewed strength. During the last part of October York Imperials sold in Great Britain for \$6.50 to \$7.25 per barrel. Ben Davis sold at \$6 to \$6.50 per barrel on October 21.

Domestic prices have been firm, with the tendency upward. It is reported that growers are "sitting rather tight." Practically all of them have confidence in the market situation, and furthermore, many of them are

taking the precaution not to over-estimate their supplies and to sell out too heavily. Most of the shipments to date have been the result of sales made earlier in the season.

THE STATE extension department of Maryland reports that growers on the eastern shore have obtained excellent results this year from shipping mixed carlots of fruits and vegetables to comparatively small markets. By loading a car with several products, it is said, shippers found good markets in many small towns that cannot handle carlot quantities of a given commodity. These markets frequently pay as good prices as the large markets, and sometimes, when the large markets are glutted, the small town prices are better.

The report adds further that it is possible to load mixed carlots more readily at some times than entire carlots of a single commodity. This is particularly true of fruits and vegetables that ripen a week or 10 days ahead of the bulk of the crop. Furthermore, certain crops, such as lima beans, are not grown in sufficient quantities in some communities to make carlot shipments possible.

IMPORTS of fresh fruits into the United Kingdom have shown a substantial increase since 1913, the value having more than doubled in the seven-year period, 1913-20, and almost trebled in the 10-year period, 1913-23. Whereas in 1913 such imports were valued at \$47,595,294, their value reached \$116,490,389 in 1920 and rose to \$126,247,108 in 1923. The estimated value of approximately \$129,000,000 in 1924 is also a further increase, exceeding by \$3,000,000 the value of 1923 imports. (The approximate value of total imports of fresh fruits for 1924 was obtained by deducting 15 per cent—an estimate—from the value of the combined fresh-fruit and nut imports for that year.)

The following table indicates the value of total yearly imports of fresh fruit in recent years:

Year	Value
1924	\$129,000,000
1923	126,247,108
1922	109,514,414
1921	110,748,330
1920	116,490,389
1913	47,595,294

The greater portion of the population of the United Kingdom is engaged in industrial rather than agricultural pursuits, and while apples, pears, plums, cherries, strawberries, raspberries, gooseberries, and currants are grown commercially, the supply by no means meets domestic requirements. In 1924 the estimated commercial production of apples in the United States approximated the equivalent of 86,103,000 boxes (a box equaling one bushel), of which a quantity equivalent to approximately 12,361,020 boxes (around 14 per cent) was exported to various countries, the United Kingdom taking over 65 per cent of such exports. On the other hand, the estimated commercial production of apples in the United Kingdom, with a population around two-fifths of that of the United States, was but one-tenth of United States production, or the equivalent of approximately 8,201,600 boxes, of which some 1,071,800 boxes were dessert apples, 4,473,600 boxes cooking apples, and 2,656,200 boxes cider apples.—D. J. Moriarty, in Commerce Reports.

THE GOVERNMENT crop estimate placed the citrus crop of Florida at 19,000,000 boxes. A number of the



citrus leaders regarded this estimate as too high. To them it was quite apparent that the high estimate would cause a depression in prices. Accordingly, a number of leaders have been active in getting the government to revise its early estimate. C. C. Commander, Manager of the Florida Citrus Exchange, was most active in this work. He was assisted by Florida senators and congressmen. As a result, the government estimate has been reduced to 17,500,000 boxes, which is approximately correct, in the opinion of various experts.

This move, which will probably mean much to Florida citrus growers, is another example of the benefits of co-operative marketing. If there had been no large state co-operative in Florida, the chances are good that a revision would never have been made, and as a result, prices for Florida oranges would be lower during the coming winter than they should be.

APPLE shippers in the Northwest are pleased with the announcement of the Blue Star Steamship Line that a new refrigeration service will be begun between north Pacific ports and Hull, Rotterdam and Hamburg. There has been limited service the past few years but not enough to meet the needs.

The Blue Star Line officials promise to develop the business to the limit. All three of the ports named are big trading centers. Hull is the distributing center for the east coast of Great Britain, many large exporting concerns being located there. Rotterdam and Hamburg already have direct refrigeration service, but the new service will add to the refrigeration facilities which are needed to meet the increased demand for northwestern apples. The Blue Star officials expect to institute service with Scandinavian ports at a later date.

THE YAKIMA (Washington) Fruit Growers' Association is following a new policy this fall in regard to storage. The fruit will be stored at home instead of near the markets, so that a closer check can be made on its condition up to the time of shipment. The four Big "Y" storage plants at Kennewick, Zillah, Sawyer and Yakima were filled to their capacity of 700 cars. Additional storage for 200 cars was secured in Grandview, Wapato and Yakima.

Jonathans were practically all shipped early in October. Spitzenburgs were also largely sold out, being shipped mostly in mixed cars. Large sizes of Romes have been in steady demand and storage of this variety will be limited mainly to the medium sizes. About 30,000 boxes of Delicious in straight cars had been shipped early in the month, but there will be some of the fancy and C-grade apples stored.

### Monthly Market Review

THE FOLLOWING summary of the fruit marketing situation was furnished by the United States Bureau of Agricultural Economics on November 10:

"Higher prices for fruits and vegetables were main features of the market toward the end of the fall season. Gains at that time are nothing unusual, but this year the advances began a month earlier, including October as well as November.

"Produce shipments have compared well with last season during the early fall months, but began to fall away rapidly the last week of October. Some lines are about done by November, and most winter shipments are from storage, although the marketing of new oranges, lettuce and bunched vegetables begins before the old northern crops are fully under cover.

"Some indications suggest a light movement of produce this winter. Not only was the past season's production less, but active marketing began early and a large proportion of the crop has been shipped to market for storage. As for the coming crops, win-

ter vegetables show lighter acreage in Florida, owing partly to the disturbing effect of the real estate boom. Considerable truck land has been divided into lots, and some farmers are more interested in real estate markets than in the trucking outlook. Besides, there is a scarcity of labor on account of the demand for building and other lines of activity.

### Apples Slightly Higher

"Prices of apples have been slowly catching up with the produce market in general. The present level is not much lower than the general range a year ago. A few varieties are even higher than last season. The general gain in barrel stock during October and early November was 25c-75c a barrel, while northwestern boxed apples had gained 10c-25c per box during the same time. At the end of

October northwestern extra fancy Jonathans were selling for \$1.75-1.90 at shipping points, Delicious \$2.25-2.50, Romes \$1.65-1.75 and Winesaps at \$2-2.25. These prices run about 10c a bushel lower than in 1924 for leading varieties, but about 75c lower for the Delicious. Northern city markets quote prices \$1-1.25 per box above the shipping point level. Foreign apple trade started well, and has kept along at about last season's volume. Prices around November 1 in foreign markets compared well with the general October level, and were at least 25 per cent above the prices a year ago. The good export trade has been a strong influence in the gradual rise of the whole market. The past pear season closed successfully with a good export demand for Kieffers, which were selling in British markets at an average

of about \$6 per barrel, as compared with \$3-3.50 at western New York shipping points.

### Grapes Active

"Prices of eastern grapes sagged off toward the end of the season from the combined effects of crop injury and the abundance of western grapes, but on the whole the price received for New York grapes was not far below \$100 per ton through the height of the season, and was considered fairly profitable, notwithstanding a light production. The grape crop in Michigan was extremely light. California grapes are still flooding the market as a result of the season's great movement of 70,000 to 80,000 carloads. The carlot grape output is now in the general classification of heavy shipping products along with potatoes, apples and oranges."

## DODGE BROTHERS SPECIAL TYPE-B SEDAN

Ruggedly built for hard work, yet smartly equipped, too, for social and family use.

The steel body is finished in a lustrous black enamel that lasts for years. The seats are deep, wide and durably upholstered in genuine blue Spanish leather. Every item of special equipment is an integral part of the design — not an afterthought.

A practical car, through and through.

Ask your dealer about Dodge Brothers  
New Credit-Purchase Plan



# Niagara

## Soluble Sulphur Compound

### The Complete Dormant and Delayed Dormant Spray

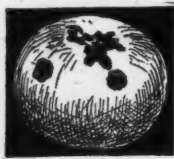
In the Delayed Dormant Niagara Soluble Sulphur Compound (complete in itself) controls Aphis, Scale and Scab with one application of one material.



**APHIS**  
A Most Stealthy Pest  
Soluble Sulphur Compound, alone, when used in delayed dormant, at a time when rosy and green aphid eggs are in the cracked stage, will control these insects, if the buds are thoroughly wet by the spray and the application is made according to directions.  
No addition of nicotine



**SCALE**  
The Cause of Abandoned Orchards  
San Jose Scale is continually devitalizing trees and blemishing fruit, making it unfit for market. Next year may be your Scale Year. Niagara Soluble Sulphur Compound rids the orchard of scale and keeps the trees free of this orchard foe.  
Complete in itself



**FUNGUS**  
Worst Enemy of Fruit  
Apple scab infection frequently occurs during the delayed dormant period. Niagara Soluble Sulphur Compound is a fungicide and will prevent this possible infection of fungus and start the trees on the road to the production of clean fruit.  
No addition of a fungicide

**It costs less and does more than other sprays**  
One 100-lb. drum is equal to one 600-bbl. of Lime Sulphur Solution. Every pound paid for is a pound of effective spray material.

**COMPLETE — EFFECTIVE — ECONOMICAL**

See your dealer or write for booklet now!

**Niagara SPRAYER COMPANY, MIDDLEPORT, N. Y.**

**Don't Pay Freight on Water**



**Unexcelled for Orchard Work**

Its low height, great area of traction surface (900 to 1000 square inches), positive, square-turning ability made possible by its multiple disc clutch control, front spring suspension with ample ground clearance and automatic spring release, which protects the tread and prevents undue strain, makes the Track pull-equipped Fordson an ideal orchard tractor.

It is low in cost to buy and to operate. You should investigate it. Your Fordson dealer can tell you all about it—or write this company.

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## How to Detect and Control Field Mice

(Continued from page 4)

ing for these, one should pick out the more dense covers and carefully part the grasses in all directions when the runs will be clearly evident if present. By fall the trails will probably have been used for a considerable time and will be well worn and extensive, a single run usually extending to three or four or more trees. In case of either species of mouse, they may be expected to concentrate in the lower parts of the orchard, where the soil is usually richer and more moist and mellow. This is most often associated

though, at the same time, they supply a favored food that in itself is often sufficient to protect the trees. It is not safe, however, to depend upon the presence of leguminous foods to ward off the attack of numerous mice, for in a number of cases on record the mice have wrought great destruction under such conditions.

### Trapping or Poisoning for Pine Mice

If pine mice are present, trapping and poisoning are the only methods applicable. Meadow mice may be prevented from reaching the tree by guarding the base of the tree with tar paper, wooden veneer, or woven wire. The latter is the most economical in the long run and does not have to be removed each spring as do the others to avoid harborage for insects. By using wire netting 18 or more inches high, the tree is well protected from rabbits also. Occasionally the mice are able to get under the guard or over the top in cases of deep snow, but as a whole this form of protection has given satisfactory results.

A less expensive and fairly satisfactory method of protecting trees from meadow mice (not from pine mice) is by means of repellent washes applied to the base of the trunks. These also protect the trees from rabbits when applied to a sufficient height. Young trees, however, when painted with a continuous air-tight or waterproof coating are liable to be seriously injured. Probably the best deterrent of this sort is a mixture of one part of creosote oil to two or three parts of coal tar. This should not be applied, however, to trees two years old or less. There is less likelihood of injury to young trees if the mixture is applied in strips and not solidly around the trunk. A rather thick mixture of pure white lead and pure raw linseed oil has also been used successfully on the larger trees. For young trees, a coating of undiluted lime-sulphur is very effective but is short lived and should be renewed several times during the winter for the best effect.

Thorough trapping or poisoning, when successful, is probably the most practical method, as it applies equally well to both species of mice and meets practically every condition liable to be encountered. Total elimination of the mice removes all chance of injury and allows mulching if desired, a very dangerous practice where mice are present. Trapping, however, is not practical except on small areas, on account of the labor involved in caring for them properly. When only a few trees, a bed of tuberous plants, or other small areas are concerned, a few ordinary wooden-based snap mouse traps set in the runways of the mice and baited with oatmeal will well serve the purpose. On larger areas poisoning is recommended.

### Poisoning in Fall is Effective Method

If poisoning is successfully carried on late in the fall, there will probably be no further mouse invasion of the orchard and the trees will have been protected for the winter. It is not always possible, however, to destroy 100 per cent of the mice with one poisoning so that it is desirable to



Typical pine mouse injury

with a more abundant food supply and better cover, as well as a more favorable soil in which to burrow. October or November or even December are the months for the inspection of an orchard for mice and for taking steps to protect the trees for the winter.

### Several Methods of Preventing Injury

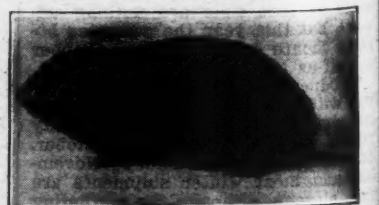
Having found the orchard infested with mice, it is necessary to decide upon a method of preventing injury to the trees. This may be accomplished by killing the mice, by keeping them away from the trees by repellent washes or mechanical protectors, or by keeping them out of the orchard by clean cultivation, which removes their food supply and surface shelter.

In selecting the most practical method of controlling mice on a premise, there are a number of points to be taken into consideration, since successful methods will vary greatly with the various conditions to be encountered. In general, however, the following procedure will be found applicable as indicated:

### Fall Cultivation Effective

In orchards where cultivation is annually practiced, a thorough cultivation in the fall will be found most effective. Clean cultivation removes the normal food supply of both species of mice and causes them to seek other quarters. Cultivation around the tree is helpful only in the case of the meadow mouse and is of no practical value where pine mice are concerned. Even in the case of meadow mice, however, the deeper snows should be packed down around the trees, for otherwise the mice will be able to approach and work on the tree under cover of the snow and thereby defeat the purpose in clearing away the cover from around the tree. The nearer the approach to clean cultivation, or the more frequent the cultivation, the fewer mice will be encountered.

In orchards where a cover crop is allowed to remain for several years before being plowed under, or where permanent sod of grass or cover of clover or alfalfa is maintained, it will be advisable to take some action to destroy the mice or protect the trees from their depredations. Leguminous crops particularly attract mice, al-



Pine mouse (*Pitymys pinetorum*)

place in the orchard a supply of poisoned bait which will be available to any mice present and remain in an effective condition throughout the winter. This is accomplished first by preparing a bait that will be resistant to weather, and second, by placing



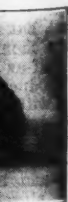
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the poison in a position where it will be accessible to mice and protected from the elements. Poisoned bait prepared according to the following formula is well adapted for this purpose:

Mix one tablespoonful of gloss starch in a half teacupful of cold water and stir into one pint of boiling water to make a smooth, clear paste. Mix one ounce of powdered strychnine with one ounce (one tablespoonful) of baking soda and stir into one teacupful of the starch paste to a smooth, creamy mass free from lumps. Add one-half teacupful of heavy corn syrup and two tablespoonfuls of glycerine and stir thoroughly. Apply to 12 quarts of good clean wheat and mix thoroughly until every

containers manufactured especially for this purpose that are proving successful. The poison stations should be placed under every tree where the mice are particularly abundant but where the infestation is not heavy; one under every two to three trees in alternate rows will suffice. The stations should be filled in the fall and inspected and refilled later in the winter and spring as required.

A second poisoned bait more easily prepared and usually very effective, particularly for pine mice, but not giving permanent protection unless repeated from time to time, is prepared as follows: Cut three quarts of sweet potatoes into approximately half-inch cubes. Mix one-eighth ounce of powdered strychnine and an equal



Good type of poison station for field mice

kernel is evenly coated. Allow to dry over night, when it will be ready to use.

#### Place Bait in Poison Stations

A tablespoonful of this bait should be placed in poison stations provided to protect bait from the weather for the purpose as stated above. Tin cans crushed so as to leave an opening of about one and one-half inches are often used but have to be replaced every year or two. Small drain tiles, wide mouthed bottles or, better still, small, home-made, wooden caches, or flat, box-like containers may be used. There are also two commercial poison

amount of baking soda, and, using a pepper box, sift this over the freshly cut potatoes, stirring constantly to distribute the poison evenly over the baits. Use at once or while the baits are fresh.

One or two pieces of the bait should be dropped into the openings in the mouse tunnel and placed also in mole runways if present. If holes are numerous, only one or two openings need be treated under each tree. This method is very useful also in destroying these mice during the summer when they are found destroying tuberous plants, truck garden produce, and the like.

### Rambles of a Horticulturist

(Continued from page 7)

a very great interest is developing in several deciduous fruits and pecans. One of the deciduous fruits now attracting a lot of attention is grapes. The question of whether or not they will grow successfully is already beyond the experimental stage. The Munson seedlings of the *Vitis aestivalis* type have been found to grow quite successfully in that section. Interest has now reached the stage where the acreage will be extended rather rapidly. The variety question is the only one which seems to need further investigation, and this, of course, is a matter which will probably have to be worked out slowly in accordance with market demands.

Grape growing is perhaps best developed at present in Lake county, at Tavares, near Leesburg. There, County Agent L. H. Wilson, has been quite active in promoting the industry. Carlot shipments were made for the first time the past summer.

There is also much interest in grapes in northwestern Florida. The acreage there promises to be extended rapidly in the next few years. Around De Funiak Springs, in Walton county, the interest is very keen, largely because of the success of A. L. Cottrill.

#### Munson Seedlings Do Well

The varieties which have proved successful in Florida are seedlings developed by the late Prof. R. W. Munson in Texas. They belong to the summer type (*Vitis aestivalis*). The leading varieties are the Ellen Scott, the R. W. Munson, and the Carman. The fruit of these varieties is leader, juicy and delicious in flavor.

The bunches are fairly compact and large, though the berries are considerably smaller than those of the Concord. The color varies from light wine to dark wine in shade and is quite attractive. The Carman seems most popular at present. It has good color and quality, and, as the skin is somewhat tough, it should be a good shipper. The Ellen Scott is superior in quality, but the skin is quite tender and there may be some difficulty in shipping it. The Munson is reported to be excellent, but the stock is still limited in quantity. The Armalaga, a white grape, is also promising, and the Niagara also grows well in that section.

Attempts to grow the European wine grapes (*Vitis vinifera*) and the native Fox grapes (*Vitis labrusca*) have resulted unsuccessfully owing to attacks of diseases. The Muscadine grapes (*Vitis rotundifolia*) grow successfully, but there is no great demand for grapes of this type at present.

I had an opportunity to examine in detail the 10-acre vineyard of A. L. Cottrill, near De Funiak Springs. Mr. Cottrill and his wife lived in Chicago until a couple of years ago. His wife is as active in the outside operations as himself. They have a nicely improved place. The vineyard was planted in February, 1924, and it has made a remarkable growth, thanks to excellent care and heavy fertilizing. Some of the canes made a growth of over 30 feet the past season. It seems to me this is too much growth for best re-

(Concluded on page 27)

## Using the Gang Plow

A gang plow and a tractor will turn two or more furrows at a time. It pays to use machinery—if your farm is large enough.

But large-scale production means a large-scale risk. To spread this risk, and to make the fullest use of land and labor and equipment, the farmer turns to diversified production.

The first electric light and power plants produced but a small "crop" of a single service—lighting. As the demand grew, interconnections made it possible for a larger plant to serve a wider territory. Diversification, too, was sought by developing new uses for electric power.

Based on these principles of large-scale production and diversification, our present so-called "super-power" systems have grown up. These are the systems which have made it possible to use the "gang-plow" in electric-power production and to extract much more electric power from each pound of coal than even the best of "small-scale" power stations could produce back in the "old days"—twenty years ago.

To extend the benefits of so-called "super-power" to agriculture, fifteen state committees are at work with the national committee in studying the problems of farm electrification.

The Committee on Relation of Electricity to Agriculture is composed

of economists and engineers representing the U. S. Depts. of Agriculture, Commerce and the Interior, Amer. Farm Bureau Federation, National Grange, Amer. Society of Agricultural Engineers, Farm Lighting Mfg. Ass'n., and the National Electric Light Association.

If you are interested in this work, write for a booklet describing it.

## NATIONAL ELECTRIC LIGHT ASSOCIATION

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which have solved the problem of tree protection for every grower who has tried them. The most perfect protection against rabbits, mice, woodchucks, rats, moles, etc., etc. Easiest applied; Perfect Fastener; can't come loose. Rugged, durable guard of finest quality, heavy galvanized steel, yet cheapest guard in the market. Write today for our important free handbook of helpful information, listing everything for the Orchard and Garden if you not already have one.

THE ORCHARD AND GARDEN SUPPLY CO., Northampton, Mass.

### SPRAY YOU NEED OSPRAYMO SPRAYERS

To double the dollars at harvest High-pressure machines. The last word in mechanical agitators. Automatic brushes keep suction strainers clean. No clogging of nozzles.

A sprayer for every need —high pressure guaranteed.

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FIELD FORCE PUMP CO. Dept. B Elmira, N. Y.



### Send For This Big Free Book

This beautifully illustrated and instructive 32-page book is a text-book that you cannot afford to be without. It pictures and describes your orchard troubles and tells how to control them. It contains a complete spray program, simple and easy to follow—the same program that we follow successfully in our orchard of over 30,000 peach and apple trees. This expensive book is free to any tree owner as long as the supply lasts. B. G. Pratt Company, Dept. 11, 50 Church St., New York



SCALECIDE THE COMPLETE DORMANT SPRAY



# The Orchard Home Department

## A Bit o' Bloom

AN OLD gardener did, I verily believe, prolong his life, and surely added much cheer, to his declining years, by gathering many potted plants about him in his house when age and frost combined to set limits upon his ambition to be digging in the garden. "Seems like I just can't feel natural without a bit o' bloom to tend," he would say when complimented upon the bright display.

Though we wear fewer and lighter clothes than did a former generation, we no longer consent to be cooped up indoors during the winter. We refuse to have our comings and goings dictated by the elements and show greater indifference to weather. That is, women do. As for men, they've always done just about as they pleased, and in that showed uncommonly good sense.

Yet with the coming of cold weather, the members of every household pass more time indoors than at a season when the temperature constantly invites to enjoyment under a warm blue sky. So it would seem that the house should be made specially attractive during the winter months, since the family is then most dependent upon it for comfort and pleasure.

When our gardens are gay, we love to cut the flowers to decorate our rooms. When we look out of the window and see them bare and brown, or shivering white with snow, our eyes turn back with longing for some warmth of color indoors. We need evidence of continued life and growth in nature to offset the depression of the deathlike trance of winter.

The traveler may note that the more northern countries excel in indoor gardens. Windows are brilliant with blossom in Scandinavia through the months of frozen night. We, too, are giving more attention to window gardens and feel that the delight to the eye reacts upon our spirits in such a healthful way as to make it almost an hygienic custom to keep constantly in sight "a bit o' bloom."

## A Batchelor's Baby

THIS is a true story, and the bachelor's baby is today as fine a man as any mother's son of them. Babies are doubtless the reason why some women marry. They are also the reason some men remain single, but it would not be fair to think this of all single men. Especially it would not be fair to my old friend, the bachelor next door, who, for many years, was a beloved joy to the little girl I used to be.

After I left that neighborhood and, I am vain enough to think, partly because I left it, he felt increasingly the yearning for a child's laughter and pattering feet in his home. He was nearing what have been called the lonesome years, and he certainly did love children.

His friends always thought he should marry and become a happy husband and father, but a tragedy of early life had left him unable to recall that "wild freshness of morning" which had glorified his young love. No woman thereafter tempted him to give up his freedom. Yet at last he surprised himself by taking from an orphanage a soft little bunch of smiles and dimples, with the stipulation that after one week's trial he might return it. And he promptly did.

The baby had amazed and disquieted him. He cherished freedom seemed gone. In spite of a good nurse, an overwhelming sense of responsibility had ousted his long-cultivated peace of mind. He wished the days of the week to fly by so that he might return the baby.

Early on the appointed morning he sought the institution and thrust the disturbing creature back into the arms of the attendant nurse. The baby dimpled and made a gurgling

noise that sounded in the wretched man's ears almost like "Dada." "Jolly little beggar," he said, "and quite all right for a baby, but I simply can't live with him."

Twenty-four hours later the orphanage bell rang once more. "I've come for my baby," announced the bachelor, making a grab for the soft little bunch of smiles and dimples, "I simply can't live without him."

## For Richer for Poorer

NOT MANY millionaires will read this, and if they should, they'd find nothing to hurt their feelings even though we are frankly discussing, and doubting, their desirability as associates for ourselves. In a mood of complete candor, most of us will admit that we have at times wished for more social intercourse with the very wealthy.

How natural! There's so much that is enjoyable gathered round them. The desire is not necessarily pure snobbishness, the unworthy ambition of the social climber. Often there is complete equality in refinement, education and intelligence, yet if they are greatly our superiors in wealth, we are wiser not to try to cultivate their companionship.

The position of always receiving and never offering is undignified. But what has the person of average means to offer in return for entertainment that they can in no way duplicate? It must at best be merely a gracious gesture.

Even so, the temptation to go beyond your means in the effort to keep up your end, is almost irresistible. And when you have strained every nerve, you are oppressed by the knowledge that it must all appear very commonplace to the wealthy guest.

Seldom, too, is such an association genuinely pleasurable to either party. Interests are too widely separated. Like naturally seeks like. Can you chat easily with them of sports, the latest plays and operas, or of foreign travel? Can they feel even an intelligent concern in the matters that affect your daily life?

It is more sensible to seek friends among those of approximately your own financial standing. This saves needless expense, some heartburning, and furnishes the common ground that is the essence of mutual enjoyment.

It would be folly to allow any sense of inferiority to creep into acceptance of the fact that you are better off apart; folly also, even to a greater degree, if a true congeniality is discovered, to avoid persons of any class. Friendship is almost as strong as love in leaping barriers.

Americans have been reproached for being more entirely the slaves of fashion than any other nation, yet when the Turkish government set the seal of approval upon European headgear, the hat rush of the turbaned Turk was so precipitate and fierce that legal restrictions had to be placed upon the profiteering dealers in men's millinery.

What price marriage? Our bachelor maids may thank their stars that they were not born in Cherry Blossom Land. Last summer three Japanese girls between the ages of 20 and 25, leaped into the flaming crater of a volcano rather than continue to live unwed.

Irritable Husband (to wife driving a nail): "However do you expect to knock a nail in the wall with a clothes brush? For goodness' sake use your head, dear!"—*Two Bits (London)*

## By Mary Lee Adams

### The Day of Temptation

THE DAY of Temptation draws nearer and nearer, and we hail it with gladness because we know when it comes right up to us we shall recognize it as dear old Merry Christmas. But during the weeks that must intervene, it surely deserves the most disquieting title.

Consider your probable program for the month of December, and if it isn't going to be chock-full of temptation, you must belong either to that splendid, strong, self-controlled type of which we hear much and see little, or to the ranks of those even more remote from our daily experience, to whom "money is absolutely no consideration my dear."

#### Yielding to Temptation

We pray not to be led into temptation, yet some temptations are harmless and some even praiseworthy—as when we are tempted to do a kindness. At Christmas, we really do well to yield up to a certain point. Draw the line firmly at mortgaging the farm, pawning the fiver or running into debt. Having taken these decent precautions, just cut loose and do yourself the favor of calculating how much happiness you can afford to get for Christmas.

Naturally it is not your individual happiness you are planning. Christmas is a time when we get happiness through giving. That's true perhaps, of all times and seasons, but on the Day of Temptation especially, we feel the urge to do for others.

I guess many an old miser, who simply can't let go of a single cent, has crossed the road on Christmas Day to avoid passing too close to some bright-faced child for fear that, in spite of himself, the pennies would leap out of his tightly-buttoned pockets.

The eyes of quite small children shine with as great satisfaction over some little atrocity of a gift they have fashioned for Mother or Daddy, as over the radiant tree loaded with bewildering riches for themselves. No more lovable trait can be cultivated in children than the joy of giving. The joy of getting, being inborn and sturdy, needs no tender nurture to make it thrive but, in the long run, which stands us in better stead through life?

#### Where the Gifts Go

If you take out pencil and paper and give free rein to your fancy, writing down the name of every relative, friend and acquaintance you would like to remember with an appropriate gift, it would stretch from the pavement to the tip top of that 56-story hotel that is going up on Fifth Avenue, New York.

It's fun too, and not a bad way to ease the mind, even though in the end nothing more substantial comes of it than the wonderful feast a hungry man may enjoy from reading the succulent pages of Miss Fancy Fryer's Cook Book.

Getting down to business and, if needs be, hewing to the line, few names may be left on that list but those of children. Older people will understand. Sometimes they understand so well that they say, "Why, I think it simply sinful of the Jones to spend so much money when they've owed their grocer a big bill for months."

But the children must not wait in vain for Santa Claus. How fortunate it is that, until their years run into two figures, they are, unless spoiled, so well pleased with inexpensive treasures. Most of us have learned the lesson taught by little Bobby who, when his parents almost went broke in the effort to tickle his fancy, was found five minutes after receiving his grand new toys, in the kitchen beating on the same beloved old tin pan

that responded so gratifyingly to rapping and tapping and spinning.

#### Hail to the "Five and Tens"

At a children's party I went to this past summer, every child was beaming with delight over the prizes they drew from the pack of old Mother Goose. Almost all of these articles were, as the hostess told me, purchased at five and ten-cent stores.

These humble and gaudy bazaars have brought abundant Christmas joy into homes that without their economic aid would have been forced to go short on the supply of toys for the kiddies. How young eyes sparkle at sight of the gay ornaments for the tree. What pretty and really useful things are obtained from their fascinating counters. What balm they bring to the anxious mother who must make every dollar go a little further than possible.

We, who are not of those to whom "money is no consideration," owe an enormous debt of gratitude to these emporiums of the populace. They are the average Christmas shopper's paradise. Let's give three rousing cheers for the "Five-and-tens," and I'm more than willing to serve as cheer leader.

#### By All Means Have a Tree

In my childhood there were a few Christmases without a tree. It must be confessed that they appear in retrospect somewhat drab beside those scintillating memories of holly, pine, spruce, fir or hemlock. There may be a merry Christmas, even a jolly Christmas, without a tree, but it is not a complete Christmas any more than it would be if the same old thing were served for dinner as on any other day.

Children (and after all anything we write or say about Christmas comes down to the children) love a tree. And I think it ought to stay up a full week even if a few leaves or needles fall. The season's blessing of Peace and Good Will seems to hover over the house so long as the little tree stretches out its arms in benison.

Wreaths in the windows, greens and berries over the door, are emblems of hospitality and express the general neighborly spirit that marks the true value of our Christmas revels. Purses may be shrunken on that day, but if the heart be greater, there has been gain.

#### Love Must Be Expressed

Taking a peep back into the early years, can't you see the dear smile on the faces of father and mother as clearly as you see the gifts and lights and wreaths? Did not all your games have an added zest because of their entrancing interest in them? No one with such memories should be willing for their own children to grow up without them.

How shocking a sour face looks at the Christmas board. How a harsh word grates on the ear. How revolting is any evidence of meanness or selfishness while the chimes ring out or the carols are sung. These things are sadly out of keeping with the spirit of Christmas.

On this loveliest of festivals, modernists and fundamentalists, gentiles and even Jews feel the same obligation laid upon them, the obligation to follow, at least for the brief period of celebration, the example of the great and gentle Teacher from whom the day derives its name.

Being what we are, few of us can maintain this high pitch of spirituality continuously. But if for one only day in the year we become as little children, simple, loving and guileless, we are the better for it the year round. No class of people can be found more sure to reap this benefit than my fruit grower friends. Merry Christmas to every one of you.

There's no phrase we know that helps more to preserve the self-respect of ill-disciplined, irritable persons, than the oft-repeated "It gets on my nerves."



## Rambles of a Horticulturist

(Continued from page 25)

suits, though some of the authorities in that section claim it is not.

### Methods of Training

Mr. Cottrill's plants bore a fair crop of grapes this year. He trains his vines according to the Munson system. This is used almost altogether in the section and seems to be well adapted for the climate and the bright sun. Posts are set along the rows, as in the Kniffin system, and a cross arm is nailed to each post. One wire is stretched over each end of the cross arms and another is tacked to the posts just below the cross arms. The vines are supported vertically by the lower wire and the canes are allowed to spread out over the cross arm wires as they grow.

Heavy pruning is practiced, as in northern sections. Because of the sandy nature of the soil used for grape culture, heavy applications of fertilizers are made. Mr. Cottrill sprayed with Bordeaux the past season and both the fruit and foliage were conspicuously clean.

The grape industry of the southeastern states ought to have a good future before it. The Munson varieties have fruit of excellent flavor and appearance. The fruit ripens early in the season, before the grapes in northern states and before there is much competition from California. This fact alone should permit the development of a strong market demand for the southern product. There are some leaders, furthermore, who believe there are real opportunities along the grape juice line for southern grape growers. No less an authority than Dr. H. H. Hume of the Glen St. Mary Nurseries is strongly of this viewpoint.

### BLUEBERRY GROWING

Another fruit which promises to grow in importance in Florida is the blueberry. This fruit grows wild in Florida and has been developed under cultivation only recently. County Agent J. W. Mathison has been active in promoting the selection of superior wild plants for setting cultivated areas. As these grow and exhibit their merits, the poorer plants are removed and are replaced by root suckers from the superior plants. One of the most extensive growers in northwestern Florida is W. R. Stinson, with whom I visited for a whole day. Mr. Stinson, a lumber operator, also has several farms and is much interested in pecans, Satsuma oranges and blueberries. He has 15 acres of blueberries in bearing and he picked 5500 quarts from them the past season. They were sold in the fresh state. Canaries are expected to develop at a later date.

### Plants Propagated from Wild Stocks

The plants may be propagated either by root sprouts or by means of cuttings. The wild stock shows a wide variation in the type of plant and the character of the fruit. Although I heard of no specific tests of the matter, several persons stated that the superior varieties developed in New Jersey were not adapted for southern conditions. If this is the case, the only methods of improving varieties are to make selections from the wild type or to grow seedlings in quantity in the hope that superior ones will appear. It will be well for growers to propagate their entire plantings from a given strain or variety so as to be able to offer a uniform product for sale. Conditions seem favorable for blueberries in Florida and the acreage devoted to this crop ought to increase materially in the next few years.

### SATSUMA ORANGES

The Satsuma orange receives considerable attention in northern and western Florida. The larger fruited varieties are too tender for these sections and the Satsuma, being better fitted for the conditions, is grown quite extensively. This is the kid glove orange which was introduced from Japan. The acreage planted to it was increasing rapidly up to two years ago, when a severe freeze destroyed

# ATWATER KENT RADIO



The Receiving Set illustrated in the Model 20 Compact. This set is priced at eighty dollars.



The farmers say "Atwater Kent"

The Meredith Publications, owned by Edwin T. Meredith, ex-Secretary of Agriculture, and the Capper Publications, owned by Arthur Capper, ex-Governor of Kansas, recently asked farmers in many States what make of radio they expected to buy.

In both surveys the leading make was Atwater Kent. Every Atwater Kent owner knows why. Your dealer knows, too, and will be glad to tell you.

## "There are no songs like the old songs"

WE KNOW a farmer who is fond of music and thinks the melodies of his youth are best.

For years he sought the words of a song his mother used to sing. It was "Nicomodemus." He remembered the air, but the lines eluded him.

No one could help him—not even a music publisher to whom he wrote. He seemed to be the only person in the world who had heard of this song.

Last Christmas the farmer bought a radio set—for all the family. One evening, out of the ether came the lost favorite—a mellow baritone singing:

"Nicomodemus, the slave, was of African birth,  
And was bought for a bag full of gold;  
He was reckon'd as part of the salt of the earth,  
But he died long ago, very old."

The farmer's wife wrote down the words—all the verses.

"That one song is worth ten times more to me than the money we paid for the radio set," the farmer said. "Just suppose we hadn't been listening!"

And the farmer's wife—what does she say? Her favorite is "Swing Low, Sweet Chariot," sung by a male quartet. She hears it frequently, for broadcasters have wisely recognized the demand for negro spirituals and old "heart songs," as well as for classical music and the steamy jazz of the night clubs.

"I like to hear the great preachers, too," says the farmer's wife. "But, I declare, the best thing about radio is that it keeps the boys and girls at home."

Their set is an Atwater Kent. Can you imagine a gift that would bring more happiness this Christmas—to all your family?



Model 20 (without tubes), \$30



Radio Speakers priced from \$12 to \$25



Model 20, \$80

Prices slightly higher from the Rockies west, and in Canada.

many groves. That freeze demonstrated that well cared for groves were able to endure more cold than others. At the present time the industry is taking on new life and additional plantings are being made. The trees are banked high with earth every fall, for it has been found that such trees, after having their tops killed by a freeze, will sprout from the base and will make a new top. Many young trees so treated during the freeze two years ago have developed nice new tops and are bearing good crops of

fruit. On the whole, not many of the old groves are being revived in northern Florida, most of them having too many bare spots for this purpose. Comparatively numerous plantings are now being made and there is every indication that the Satsuma industry will become an important one again in the near future.

EXCESSIVE rainfall during late summer and early fall may cause some winter killing of grapes, according to the New York Agricultural Ex-

periment Station. Grapes on poorly drained soils will probably suffer more than others.

The station recommends that growers plant cover crops or let the weeds grow in July or August of each year. This will tend to dry out the soil and ripen the wood early. Rye, oats, wheat, barley and buckwheat make good cover crops.

Some injury will always follow severe weather, but vineyards receiving the proper treatment will suffer less than others.

### How radio pays its way

RADIO has something for everybody. It brings into your home, from over the hills and far away, concerts, opera, plays, fiddling contests, spelling bees, lectures, farm talks, university extension courses, the voices of the world's leaders, including the President of the United States.

To the farmer, it also brings market, crop and weather reports. The farmer who is missing this Government service is losing money, as thousands of farmers, who are making money by owning radio sets, can testify.

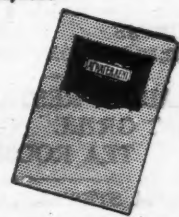
Hear the Atwater Kent Radio Artists every Sunday evening at 9:15 o'clock (Eastern Standard Time) through stations

WEAF . . . . . New York  
WJAB . . . . . Providence  
WERI . . . . . Boston  
WFSJ . . . . . Philadelphia  
WOO . . . . . alternating  
WCAR . . . . . Pittsburgh  
WGR . . . . . Buffalo  
WWJ . . . . . Detroit  
WOC . . . . . Davenport  
WCCO . . . . . Minneapolis-St. Paul  
WSAI . . . . . Cincinnati  
WCAE . . . . . Washington  
WTAO . . . . . Worcester  
KSD . . . . . St. Louis

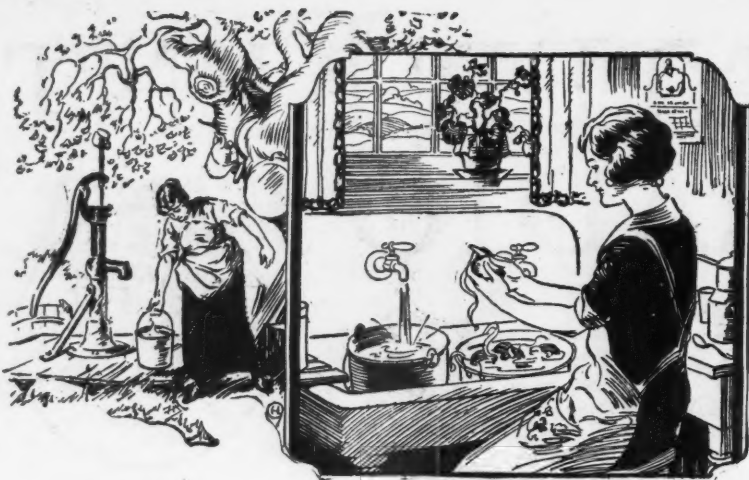
ATWATER KENT MFG. CO.  
A. Atwater Kent, President  
4717 Wissahickon Ave.  
Philadelphia, Penna.

### SEND FOR IT!

We will gladly send you free a copy of this beautifully illustrated 32-page booklet, if you will just write and ask us. In it you will find descriptions and prices of Atwater Kent Receiving Sets, Radio Speakers and other equipment.







## How much should a woman lift?

"A pint is a pound the world around," and the woman who carries from the well to the house the water needed for the average farm family lifts several hundred pounds a day.



This trademark is a symbol of quality which you will find on little motors that pump water or run household machinery, and on the big motors that irrigate vast farm sections and turn the wheels of American industries.

A pump driven by a G-E motor will do this job for a few cents a week, where electric service is available.

Farm surveys in a number of states show that the most used electric conveniences are those that make woman's work easier.

## GENERAL ELECTRIC

### Hotel Tuller DETROIT

800 ROOMS 800 BATHS  
\$2.50 PER DAY AND UP

ARABIAN RESTAURANT  
GOTHIC GRILL CAFETERIA  
TEA ROOM

JOHN H. STEWART, Gen. Mgr.

### EVERGREENS

Shade Trees, Shrubs and Hardy Flowering Plants. Let us show you how to beautify your home with these at small outlay.

Apple, Peach, Cherry

Plum and Pear Trees—all budded from bearing orchards. Also Grapes, Strawberry and Raspberry Plants and Asparagus Roots. Write for Free Catalog and "Practical Plans for Home Planting."

HARRISON'S NURSERIES  
Box 52 Berlin, Maryland

### FARMS AND ORCHARDS

If you have either for sale, place your proposition before the readers of The American Fruit Grower Magazine, through the classified columns.

Describe it fully—as to size, price you are asking, what equipment it has and how well stocked. Then you are sure to reach prospective buyers.

## Ford Sedan Given

I am going to give away a brand new Ford Sedan to someone who answers this adv. It will be completely equipped with electric lights and starter, sliding glass doors, large tires, desirable finish—complete with freight and tax paid. We have already given away many autos in advertising our business. This is your chance to win this ideal summer and winter car for your very own. Can you make out the two words spelled by the numbers in the picture to the right? The picture is numbered A to I, 1 to 5, etc. What are the two words? Send your answer today—not a cent of cost to you now or later. Prizes awarded April 5, 1924.

Send Answer Today

We also give away Talking Machines, Records and more. One of the prizes will be a beautiful—EVERYBODY REWARD! M. L. Boies, Dept. 5849 630 W. Jackson St., Chicago

1 2 1 2 0 5  
6 1 8 5 5



## CHATS WITH FRUIT GROWER'S WIFE

By HAZEL BURSELL



### Christmas Gift Suggestions

"TIS MORE blessed to give than to receive," saith the Good Book.

Too many of us forget that truth-laden message when it comes to Christmas giving, or at least miss its real meaning. We give to many from a sense of duty or because "we owe them something," instead of from real affection. To others we give because, as we put it, "they are sure to send us something, and we'll just have to remember them." Neither the giver nor the receiver can be happy over a gift sent in this spirit. The remedy is, "Don't do it!" When gift giving becomes a burden and is done purely from a sense of duty, that person or family should be transferred from the gift list to the greetings list. No doubt the other party will feel equally relieved.

There are exceptions, however, mostly in the case of distant and possibly crabbed relatives, where giving should be continued even when no great affection is professed. The receiver of the gift in all probability derives much happiness and pleasure from it in this instance, so that we are bringing happiness to others. We may even get some measure of satisfaction ourselves, knowing that we have made them happy.

#### Give Within Your Means

The first axiom of successful giving is to give within your means. The wealthy family may remember their less opulent friends with rare or valuable articles which the receiver will truly appreciate, but such gifts must not be obviously expensive. Some things, you know, carry very definite price tags even though all marks have been carefully removed. The family of less means should give to wealthier friends when they are really intimate. The giver should choose something appropriate to the family income, exercising ingenuity so as to provide something worth while. A too expensive present would savor of favor seeking and would be less appreciated than some less costly, though carefully made, selection.

Giving to the poor and needy, especially women and children, should become the Christmas custom of every family. Neither should worthy organized charities be forgotten. Nothing brings the real Christmas spirit into the home so quickly as the giving of food, clothing or fuel to some family less fortunate than ourselves.

Ye Editor has prepared a list of gift suggestions for the average family, classifying them under various headings. They should afford some assistance in solving gift problems.

#### Family to Family Gifts

Appropriate greeting cards are the best form of remembrance for neighbors and distant family groups. Great care and good taste must be exercised in the selection, however, for cards, to be appreciated, must express exactly the right shade of meaning. Ornate and highly decorated cards are out of keeping, though Christmas cards should have a little touch of warm color in the design. The greeting is the important thing! "Funny" cards are sometimes appropriate for men from intimate friends.

Fancy-pack fresh or dried fruits and nuts would be appreciated by city or distant friends or relatives. Horticultural products raised in one part of the country would prove a real treat to residents of another district. Dates, prunes, walnuts, filberts, oranges and

grapes, when properly packed, all make attractive Christmas gifts. This custom, if popularized, would lead to increased markets for fruit products.

Rare shrubbery, plants, bulbs or trees are desirable gifts to neighbors and friends. One family may have some dahlia tubers, gladioli bulbs or nice shrubs that have long been admired by their friends. They could share some of these with their friends at Christmas time. Nothing would be more appreciated by the flower-lover than one or two choice evergreen shrubs or dwarf ornamental trees, and some varieties can be had for a reasonable price.

#### Gifts for Mother

It is not usually difficult to find something for Mother, as there are so many things she needs that would bring her pleasure or save her work. The big thing to guard against is buying something that is not really personal, but "for the home," meaning all members of the family. Mother is the most unselfish of human beings, so she would say she liked things that way, but it is not fair to Mother. We buy personal things for all other members of the family.

There is the whole field of lingerie, including becoming and comfortable kimono and bathrobes, slippers, silk hosiery, dainty silk under things (she would never buy them for herself), and nightgowns. Daughter may think pretty boudoir caps too frivolous for Mother, but she'd be surprised if she could see how nice Mother looks in them, and she'd be sure to make her some. A serviceable apron with lots of roomy pockets and cap to match, in Mother's favorite color of gingham or cretonne, would make dusting and housecleaning a pleasure. Gay colored curtains for the kitchen would be a gift she would enjoy for months to come. An ivory or amber brush and manicure set might please her.

Possibly Mother is a little bit lonely and would like to have "company" in the house. A Roller canary with its soft, low trilling song in a shiny new cage would fill this need. If she likes cats and doesn't mind pets in the house, a fine Angora or Persian would please her, though they are some trouble to care for and are really a luxury. For giving lasting pleasure nothing could take the place of good evergreen shrubs, ornamental trees, choice bulbs or other unusual plants. Potted flowering or trailing plants, such as ferns, Chinese primroses, cyclamens, lilies, hyacinths, a cactus, rubber plants and begonias, make nice gifts.

Some things for the house are appropriate. Mother would be wretched in smiles if she were given a nice refrigerator equipped with a set of small square white enameled tins for holding left-overs in the ice box. The reason for the square tins is that they fit together and take up little space. Labor-saving articles, or sets of them, are suitable, as are sets of kitchen knives, silver dish mats, candy and fat thermometers, etc. She might like a set of hardwood bread, cake and meat boards. A marble slab is invaluable for candy making and other things. Nothing could be nicer for the farm than one of the attractive new oil cloths with a pretty design stenciled on in colors. A vacuum sweeper, or vacuum cleaner if there is electricity on the farm, would be a useful gift.

Possibly Mother would like a desk



for her correspondence, records, lists, etc. Dad or son could make her one if he is handy with tools, and he could paint and enamel it in blue, gray, ivory or black with a touch of color, whichever color she would prefer. Handsome desks in mahogany or walnut may also be purchased.

#### Gifts for the Whole Family

There are some things the whole family can use and enjoy, and Father and Mother or the children may well consider them in buying for Christmas. They include carefully chosen pictures, mirrors, furniture, drapes, pillows, large rugs, household linens, silver, glassware, china, candlesticks and candles, a radio, kodak, musical instruments, and a dictionary. These are usually large items and are best handled by group expenditures.

#### Gifts for Father

A gift that would really mean something to Father would be a comfortable, substantial, fine-looking chair. Someone else might present him with a reading lamp that would throw the light exactly where it was needed most. The haberdashery list is well-known and over-worked, but Dad may really need socks, ties, or a belt and buckle. Books suited to his taste and magazine subscriptions are always welcomed. A set of wrought iron or brass andirons, a desk and desk set, and possibly a typewriter for business correspondence are useful gifts. If he smokes he would like a new pipe and jar of his favorite brand of tobacco. Candy is always appreciated but is often consumed by other members of the family. A new piece of equipment for the automobile would doubtless please him.

#### Gifts for the Girl

There are so many, many things to delight Little and Big Girl hearts that no one should ever be at a loss to find something for her. Clothes and lingerie furnish an unlimited choice for all ages—boudoir slippers, kimono, bath robes, ribbon and lace headbands (equally becoming with bobbed or long hair), garters, hosiery, dainty pajamas and nightgowns, dresses, undies, scarfs, and collar, cuff and vest sets. Clever and serviceable aprons of gingham, rubber, cretonne, unbleached muslin and percale will make housework a pleasure to daughter.

A set of dainty, ruffled, tie-back curtains of organdie, voile, dotted Swiss or Marquisette in pastel colors would be a wonderful addition to any girl's room. Bedspreads, dresser scarfs, pillow slips, and dainty day-time pillows for the bed and chair may all be made at little cost. She may need a desk, or rocker or bedside table for her room. They may be made and enameled to match the other furniture or purchased at the furniture dealers.

The smaller girl will delight in kitchen things all of her very own, yellow and blue mixing bowls, various sizes of measuring spoons, a graduated measuring cup, cup-size sifter, knives, cake boards, or a candy thermometer. Her big sister would like them too. The older girl will appreciate anything in the line of linens, glassware, china, or silver for her hope chest. Gifts of flower baskets, bowls and vases will insure fresh flowers in the house at all seasons when given to the girl. They will inspire her and develop her love of beauty and ability in arranging flowers.

#### Gifts for the Boy

A set of tools will encourage the boy to develop his talents in the line of construction, besides providing amusement and occupation for years to come. Every boy, from the biggest to the smallest, loves a dog which he may really call his own. Why not present him with one, or, when he is a little older, a start of some fine livestock in which he is interested? He should then have full responsibility in their care. Expensive watches, knives, etc., are all right for the older boys but represent so much money wasted

with the youngsters, as such things are usually lost long before the year is out. Mechanical building toys are excellent for boys, though quite expensive. Never give too many toys at one time.

Personally, I am against giving guns of any type to boys, as the love of guns needs no fostering. The older boy will doubtless want a gun and may have it when he has shown himself to be careful and responsible. But the longer he has no gun, the less chance he or some other member of the family has of getting shot accidentally "by an unloaded gun." Costume suits and fancy rubber boots always make a hit with the younger boys. Interesting books or sets of books and subscriptions to boys' magazines make good Christmas presents. Leather goods, such as traveling bags, purses, belts and bill folds would, no doubt, please the older youth.

#### Gifts for Smaller Children

Toys and candy, of course, come first in the hearts of the small children, but both can be easily overdone. A few really desired toys will give more pleasure than a whole collection. When the child is given but a few at a time he will really like them, where he would run from one to another and not like any if he had too many. For the baby there are tiny brush and comb sets, tiny hose supporters, teething rings with bells attached, baby books for a record of their babyhood, and ABC books. The child learning to walk will like a kiddie car, canvas swing and jumper, rocking chair, warm sweater suit, boots, cap and overcoat, and coverall suit. Be careful in choosing toys to select those which cannot readily be picked to pieces or those with which he can injure himself or others or mar the furniture. For the baby there are cunning little toys which will float in the bathtub and entertain him while in the tub.

The above list, while not complete, should offer some suggestions which will help the average family solve its Christmas gift problems.

A Merry Christmas!

#### Tests in Candy Making

THE ONLY really dependable method of testing syrup for consistency in candy making is by temperature, using the candy thermometer. Such a thermometer is expensive to buy but will be found invaluable where any quantity of candy, icings, or other confections are to be made.

The commonly used home tests are those indicated by the thread and cold water tests. Practical experience is the main requisite for success in using these tests, as they are not as definite and accurate as the temperature readings. The thread, soft and hard ball and crack stages are all that the home candy maker will need to worry about.

The thread stages are indicated when the syrup will spin a fine (small) or slightly heavier (large) thread when a spoon is dipped into the syrup and then raised a few inches above. When a drop of the syrup adheres together to form a soft, pliable ball in cold water, the candy has reached the "soft ball" stage. The formation of a firmer ball when tried in the same way indicates the "hard ball" stage. When the syrup becomes hard and brittle when tried in cold water, so that it rattles in the cup, the cook will easily recognize the "crack" stage. The caramel stage cannot be mistaken because of the golden brown color and characteristic odor. The commonly used tests with their corresponding temperatures are given below:

	Degrees Fahrenheit
Small thread.....	215
Large thread.....	217
Soft ball.....	238
Hard ball.....	248
Small crack.....	290
Crack.....	310
Caramel.....	350

(Recipes for Christmas Candies will be found on page 32.)

## UNION CARBIDE

### makes "Home, Sweet Home" a farm reality

SINCE the earliest recorded history, in legend and song and prayer, man has always associated light with happiness. It is difficult to think of sorrow, of lowspirits, of depression in gay sunshine. And at night in the warm, friendly, sun-like light of carbide gas, the cares of the day and the weariness that comes from labor are easily forgotten.

It is not an idle boast that carbide light is man's nearest approach to sunlight. It is a fact based on the careful investigation of scientists. Think what that means in terms of your farm home. Sunlight on tap, at your call, ready to bring the rest, the relaxation, the genuine happiness that good light alone can bring.

Carbide gas can also be a helper in your work. The chores in the farm buildings that must be done early and late, before and after the sun can lend its aid, are done more quickly and with greater comfort in the clear, safe light of carbide gas. The housework in the kitchen is less a chore when your shadow does not hide your work.

Carbide gas is made in a simple generator that feeds carbide into water and requires attention only a few times a year. Then the gas passes through small,



concealed iron pipes to the burners in your home, your barn and other buildings.

Union Carbide, the hard crystalline material from which this wonderful gas is made, is supplied to you at factory prices direct from one of the 175 Union Carbide warehouses. There is one near you.

The blue-and-gray steel drums—each containing 100 pounds of Union Carbide—are familiar sights at freight depots all over the world. They have come to be recognized as a symbol of Best Grade Carbide—Highest Gas Yield—Uniform Dependable Quality.

Why not join the 400,000 happy users of carbide gas? Write for our interesting booklets on lighting, cooking and ironing.

#### UNION CARBIDE SALES COMPANY

30 East 42d Street, Dept. 104 New York, N. Y.

Please send me, without obligation, information on UNION CARBIDE Lighting and Cooking.

NAME.....

ADDRESS.....

STATE.....

I am ☐ NOW a Carbide user.

Note: Every owner of a Carbide-gas Lighting and Cooking Plant should write us, so he will be kept advised of our lowest direct-to-consumer prices and nearest warehouse address, and his name placed on our mailing list for future helpful service.

### Subscribe for the American Fruit Grower Magazine

## winter suppers

Beech-Nut Prepared Spaghetti has all the proper qualities of a winter-night supper. Just heat it. Takes but a moment. And what a warm and satisfying dish it is! Tender spaghetti—in a luscious sauce of cheese, red tomatoes and tempting spices. Beech-Nut Prepared Spaghetti is pure and wholesome. Everyone knows that spaghetti is fine food. Here's spaghetti at its best. Order a few cans when you are buying groceries.

Already cooked—just heat it  
**Beech-Nut**  
Prepared Spaghetti  
with delicious cheese and tomato sauce

The NEIL HOUSE

The newest, finest and most conveniently situated hotel in COLUMBUS OHIO

OPEN AFTER AUGUST 25, 1925  
FREDERICK W. BERGMAN  
Managing Director

## GROW ORANGES

"The Kingdom of the Sun"

Grow oranges where quality insures profitable marketing. Marion County oranges grade 50 to 75% "brights" and "golden." This is home of "pineapple" orange and here the "Parson Brown" was developed. Let us tell you about these two famous Marion County oranges. Write for free booklet. Address Marion County Chamber of Commerce, 806 N. Broadway, Ocala, Florida.

**Marion County**  
**FLORIDA**





No. 2588—Attractive Frock with Side and Back Flare.

Cut in sizes 16 years, 36, 38, 40, 42 and 44 inches bust measure. Size 36 requires 3½ yards of 40-inch material, with 1½ yards of 18-inch contrasting.

No. 2568—Sports Frock.

Cut in sizes 14, 16 years, 36, 38, 40 and 42 inches bust measure. Size 36 requires 3½ yards of 40-inch material.

No. 2321—Becoming One-Piece Dress for Sports Wear.

Cut in sizes 16 years, 36, 38, 40 and 42 inches bust measure. Size 36 requires 3½ yards of 40-inch material.

No. 2571—Charming One-Piece Frock.

Cut in sizes 16 years, 36, 38, 40 and 42 inches bust measure. Size 36 requires 3½ yards of 36-inch material with 1½ yards of 22-inch contrasting.

No. 2051—Pretty One-Piece Apron.

Cut in sizes small, medium and large. The medium size requires 2 yards of 36-inch material.

No. 2584—Frock with Slenderizing Lines.

Cut in sizes 36, 38, 40, 42, 44, 46 and 48 inches bust measure. Size 36 requires 2½ yards of 40-inch material with ¾ yard of 32-inch contrasting.

No. 2013—Round Corded Pillow.

A round pillow is an excellent Christmas gift, and your friend would appreciate receiving a gift such as this. Cut in one size and requires 1½

yards of 36-inch material with ½ yard of 18-inch material for bottom.

No. 1780—Bolster Pillow.

The home woman will appreciate a pillow like this for her living room, so why not make one and give it to her for Christmas? Tapestry, velvet or cretonne could be used. Cut in one size only and requires ¾ yard of 40-inch dark material with ½ yard of 31-inch light material.

No. 1597—Set of Toys.

The kiddies would enjoy these cunning toys if they found them in their stockings on Christmas morning. They can be made of discarded socks or stockings or odd bits of silk from your scrap bag. Cut in one size only. For material requirements, see pattern envelope.

No. 2244—Pajamas for the Boy or Girl.

This would be a lovely Christmas gift for either young daughter or son and they would appreciate it, too. Cut in sizes 2, 4, 6, 8, 10 and 12 years. Size 8 requires 2½ yards of 36-inch material.

No. 1999—Doll's Set of Clothes.

Young daughter would be delighted to have a set of clothes like this for her doll, so why not make her a set like this for Christmas? It takes so little time and material to complete it. The pattern cuts in sizes 12, 14, 16, 18, 20 and 22 inches high.

ORDER BLANK FOR PATTERNS—Price 10 cents each

FASHION DEPT., AMERICAN FRUIT GROWER MAGAZINE

For each pattern you order, send 10 cents in coin or one-cent stamps (coin preferred)

22 East 18th St., New York, N. Y.

Enclosed find.....cents for which send me the following:

Pattern No.....Size.....Pattern No.....Size.....

Name.....Address.....

Postoffice.....State.....

## Engineering for the Fruit Grower

By E. W. Lehmann

### Getting the Most Out of Heating Equipment

IF HEATING equipment is thoroughly cleaned early in the fall, the first big step will have been taken to get the greatest comfort at the least expense. The next step is to keep in mind certain rules of furnace management and put them into practice in operating the equipment.

A principle that should be remembered is that to get complete combustion the proper amount of air must be supplied. This means that the correct adjustment of the draft and check must be learned. The following dampers are usually provided: a draft damper in the ash pit, a draft damper in the fire door, a check damper to admit air into the smoke pipe, a cross damper in the smoke pipe next to the heating unit, and a by-pass damper in the furnace that allows the smoke to pass directly out. The latter is often opened when a fire is started, but is very wasteful if left open for any length of time.

#### Admit Sufficient Air

In order to admit air required immediately after firing, the ash pit damper should be opened and the fire door damper should be opened for a short time in order to burn the gas that is produced when the fresh supply of coal is added. A new device has come on the market to attach to the fire door. Its function is to break up the incoming air into small streams so the gas will be more completely burned. Do not leave the damper in the fire door open too long, for the furnace will be cooled off and heat will be wasted. To avoid overheating, do not check the fire by opening the fire door or fire door damper; this is wasteful. It is always best to check the fire by closing the ash pit damper and opening the check damper.

In firing, follow the practice of feeding the coal at the front of the firebox, leaving the fire at the back exposed. If the bed of coals is covered entirely with fresh fuel, much of the gas will pass out through the smoke pipe without being burned. When the furnace is properly fed, the gas generated will be burned as it passes over the red hot coals at the back; of course, sufficient air must be available to make this possible. For the same reason, it is desirable to apply only a small amount of coal when the fire is low.

#### Keep Deep Fire in Cold Weather

Best results are always secured in extremely cold weather by keeping a deep fire. This is just as true of a stove or boiler as any type of furnace. The red hot coals should fill the fire pot pretty well up to the bottom of the fire door at all times. In mild weather, a thicker layer of ashes can be left on the grate, but during cold weather, shake the ashes down to a thin layer. Be careful, however, not to overshake, as this is wasteful. Poking is also wasteful. It causes the air to pass through in spots, and should be avoided.

A clean furnace or boiler is always more efficient than one having the heating surfaces covered with soot. It has been estimated that one-eighth of an inch of soot on the heating surfaces will make the fuel bill more than one-fourth higher. A long handled metal brush should be provided for this purpose. Keep the ash pit free from ashes at all times. To allow the ashes to collect not only lowers the heating efficiency of a furnace, but there is also danger of burning out the grates. To avoid burning the grates, keep the ashes from piling up under them. If a grade of coal is used that forms clinkers, a pair of clinker tongs will be found useful.

#### Proper Amount of Moisture Essential

Maintaining the proper amount of moisture in the air is one method of

reducing the cost of heating and also adding to the comfort of those in the house. Heating authorities agree that at least two degrees lower temperature can be maintained, with comfort, where there is sufficient moisture. Some even claim that a room may be kept comfortable at 10 degrees lower. The modern hot air furnaces provide for the evaporation of moisture directly into the circulation system. For steam and hot water heating systems, small tanks can be purchased which can be hung to the radiator and which will fit between the radiator and the wall.

### Cost of Power

THE FACT that 60 to 80 per cent of the farm operating costs can be charged to power and labor emphasizes the need of reducing these costs as much as possible. Greater efficiency in both labor and power is made possible by larger orchards and fields and larger units of machinery. The successful fruit grower applies this principle. More tractors and a large number of trucks are coming into use. The operator must always be careful, however, not to over-equip, as inefficiency is a result of too much equipment as well as lack of equipment.

The wide range in the cost of power on farms would indicate that this is a problem to which most farmers should give attention. According to farm management workers, the cost of power from horses on farms where accurate records are being kept varies from 10 to 25 cents for each hour the horse is worked. According to the farm economist of Ohio State University, the horses in that state average only two hours of work a day during the year, and the average cost is 15 cents an hour.

The great variation in the cost of power is not peculiarly true of the horse alone; it is also true of mechanical power. The cost of power from gas engines and tractors on some farms is two or three times as much as on others. To increase the power efficiency on the farm, the units must be used a greater number of days, and in addition, the operator must realize that the machine should always be in first-class condition and that he plays a real part in efficient operation. The tractor operator should not forget that 90 per cent of the troubles of the tractor in the past have been due to the operator.

#### Farm Power Costs Too Much

There is little doubt but that the cost of power on many farms is too high. This is true of both mechanical and animal power. The load is a big factor, of course. If a lot of excess power is kept throughout the season to fill a need that exists for only a short period, the cost per unit is bound to be high. One solution is to reduce the peak load as much as possible or spread it out over a greater number of days. Since the cost of power is such a large factor in production, it is certainly a problem that is deserving of careful study.

### The Hydraulic Ram

MANY people have a mistaken idea of the possibilities of a hydraulic ram for pumping purposes, and for this reason they should be sure the conditions are suitable for operating a ram before one is purchased. The ram is not a device that can be purchased at a farm sale and be expected to operate. It must be selected for a particular set of conditions. The size of the drive and the size of the discharge pipes are dependent on the supply in gallons of water per minute. The amount of water delivered depends not only on the quantity of water flowing through the supply or drive pipe, but also on the ratio which



the height the water delivered bears to the fall from the source of supply to the ram.

A wise selection of a ram can be made only after several facts are known. Accurate measurements must be taken of the flow of water in the stream where the ram is to be installed; the available fall in feet to a point where it can be located must be determined; and the vertical distance the water is to be delivered must be known. Only a slight fall of three feet or more is needed to operate a ram, but with increased fall, the action of the ram becomes more powerful. Under ordinary conditions the ram is wasteful, which means that the supply of the water must be considerably more than the amount that one desires to be delivered. If the height to be delivered is six times the fall to the ram, about 90 per cent of the water would be wasted. As the height to be delivered is increased, proportionately more of the water would be wasted.

#### Hydraulic Rams Simple

In many localities where there are flowing streams, hydraulic rams can be used to advantage, and as a means of pumping, the ram no doubt is the simplest, the most durable, and the least expensive self-operated pumping unit known. It is automatic in its operation and requires practically no attention. Its operation is dependent on the momentum of the flowing water passing through the drive pipe. The installation must be so made that there is no possibility of the waste water backing up over the ram; provision must be made for it to flow away.

#### Storage Tank Needed

It is always desirable to provide a storage tank with a ram installation. The quantity of water needed at any

one time, and the rate of delivery from the ram would determine the size tank to select. A small capacity ram may not deliver more than five gallons an hour. Without a storage tank this would not be a very satisfactory supply, but at this rate it would deliver 120 gallons a day, which would take care of the needs of the household if adequate storage is provided.

One farm installation came to my attention in which the only storage in the house was a small tank holding three or four gallons, fastened onto the wall just above the kitchen sink. The water from the ram discharged into this tank and overflowed from it through a pipe to the stock tank in the barnyard. The tank in the barnyard was sufficiently large to provide plenty of water for the stock but the tank in the house was not large enough.

#### Select Ram Carefully

To have a successful installation of a hydraulic ram, careful attention must be given, first, to selection of the ram and second, to installation rules as furnished by the manufacturer of the ram. For example, one general rule is that the supply or drive pipe should be placed on a slope, and its length should be from five to 10 times the vertical fall from the supply to the ram, and the fall should be at least three feet. Always provide adequate drainage at the ram to remove the waste water, as outlined above.

The best procedure in a ram installation is to get all the facts needed about the source of water, the distance to be delivered, etc., and present them to a reliable manufacturer of hydraulic rams. Such a company will be in a position to make a proper selection and advise as to the installation for best results.

### Propagation of Fruit Plants

(Continued from page 8)

tion, is also commonly used in America. Most of these seeds are collected in Europe. Sour cherry seeds (*Prunus cerasus*) are used to some extent for the propagation of sour cherries. Morello and some of the hardy Russian types are probably the best stocks for northern districts.

#### Extracting Seeds

Some growers make a practice of collecting and selecting their own seeds. With most fruits it is relatively easy to separate the seeds from the pulp. The apple and pear seeds may be easily secured by running the fruit through a small grinder, such as is used for grinding cider apples. The pulp may either be washed immediately in a tub of water or it may be thrown into a tub or barrel of water and allowed to stand for several days. Stirring and working with the hands will loosen the seeds which will drop to the bottom, if the first method is used. If allowed to ferment, the pulp may be stirred vigorously with a stick or paddle, following which most of the seeds will settle to the bottom, allowing the pulp to be poured off. After removal from the water, the seeds should be dried and then stored in a dry room until ready for planting. Cherry, plum and peach seeds may also be secured in a similar manner. Peach seeds are always allowed to dry after they have been collected and are frequently carried over for the second season, growers claiming to secure better germination from the old seeds. It is a common practice to hold plum and cherry seeds in moist sand or some similar medium to prevent drying, the opinion of growers being that after the seeds have once been dried, the germination is less satisfactory.

#### Stratification

It is common practice to stratify the seeds of stone fruits and many growers practice stratification with the smaller seeds, such as those of the apple and pear. The practice of stratification consists in embedding the seeds in sand and keeping them well moistened during the whole or part of the winter. In northern districts,

it is customary to allow the seeds to freeze thoroughly in the sand on the assumption that freezing cracks the shells. The process of freezing, however, is unnecessary, for peach, plum and cherry pits will crack in southern states where freezing does not take place.

In stratifying a small quantity of seeds, a box or tub may be used. A layer of sand is placed in the bottom, then a layer of seeds, and this is covered in turn by more sand. Alternate layers of seeds and sand are put in until the tub is filled. It is undoubtedly good practice, with the plum and cherry at least, to thus stratify the seeds immediately after they have been extracted from the fruit and before they have had an opportunity to dry. They should be kept in a cool cellar or on the north side of the building and thoroughly watered during the fall. Just before the ground freezes, the container may be plunged in soil and covered with a light mulch. In the spring, the mulch will serve to retain frost so that the seeds will hold in good condition until the ground can be prepared for planting. The seeds may then be removed from the sand by screening. It will be found that practically all of the pits have opened, exposing the kernels, which may be showing short sprouts. In large nurseries, a pit is dug in a well drained piece of ground, making it possible to stratify large quantities of seeds. Peach seeds, which are usually dried after collecting, are generally stratified in the fall just before cold weather comes on.

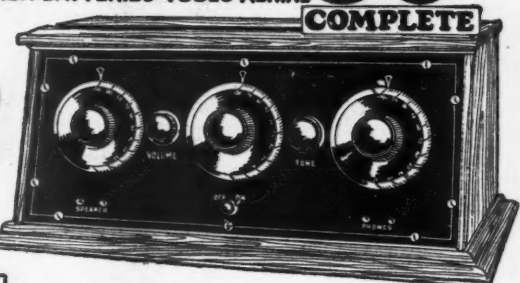
Some growers prefer to stratify apple and pear seeds, while others apparently secure equally good results by thoroughly soaking the dried seeds for two or three days and then holding them in a cold cellar or an icehouse for from three to four weeks previous to planting. Among small growers, the majority stratify the seeds by a method very similar to that outlined for stone fruits. In some cases stratification is practiced in the fall and in other cases about the middle of the winter. In the latter case, the containers carry-

(Concluded on page 32.)

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## Recipes for Christmas Candies

By Hazel Bursell

**CHRISTMAS** without candy would not be Christmas to most of us ordinary mortals. Home-made candies are best from the health standpoint for little folks and big folks alike. Then, too, the family that buys its candies from the confectionery misses the best part of the whole thing—the fun of making its own candies for the holidays. Have an old-fashioned taffy pull or fudge party for the young people and see if everyone doesn't have a jolly good time! If you are not any too sure of your candy making abilities, appoint the neighborhood's best candy cook to the task, reserving your energy for the other duties of the hostess. Be sure to make enough, whether for a small group or a large group.

## Peanut Candy

3 T. butter  $\frac{1}{2}$  c. sugar  
2 c. molasses 1 qt. peanuts  
 $\frac{1}{2}$  t. salt

Melt butter, add molasses and sugar, bring to boiling point, and let boil until mixture becomes brittle when tried in cold water. Stir in peanuts (shelled, skinned, halved and sprinkled with salt). Turn into buttered pan, cool slightly and mark into squares, or when cold break into pieces.

## Chocolate Fudge

$\frac{1}{2}$  c. sugar 1 T. Karo  
 $\frac{1}{2}$  c. milk  $\frac{1}{2}$  c. nuts  
 $\frac{1}{2}$  T. grated chocolate 1 t. vanilla  
3 T. butter

Boil sugar, milk, grated chocolate, butter and syrup to "soft ball" stage when tried in cold water. Do not stir while cooking, except to dissolve sugar in beginning. Remove from fire and let stand without stirring till somewhat cooled. Then beat till it begins to get creamy. Add nuts and flavoring and beat a few seconds more. Pour into a buttered platter and set aside to cool. Mark into squares while still warm.

## Marshmallow Fudge

2 c. sugar 3 T. butter  
1 c. top milk 1 t. vanilla  
2 sqs. chocolate 10 marshmallows

Put sugar, milk and chocolate in granite pan and heat gradually to boiling point. Let boil until mixture reaches soft ball stage. Remove from range, add butter and beat until creamy. Add vanilla and fold in marshmallows cut in quarters. Turn into a buttered pan, cool and cut in squares. Pour the mixture so as to have thick pieces rather than shallow ones.

## Butter Scotch

2 c. brown sugar 1 c. butter  
2 t. vinegar 1 c. water  
 $\frac{1}{2}$  t. vanilla

Put ingredients in a smooth, granite-ware saucepan, bring to boiling point, and let boil without stirring until mixture becomes brittle when tried in cold water. Pour into a buttered pan to one-third inch in thickness, cool slightly and mark into squares. Butter scotch is a chewing candy with a pleasing salty, "buttery" flavor.

## French Dainties

2 envelopes gelatin  $\frac{1}{2}$  c. boiling water  
1 c. cold water 4 c. granulated sugar

Soak gelatin in cold water 5 minutes. Add boiling water and when dissolved add the sugar and boil slowly for 15 minutes. Divide into two equal parts, cool slightly and add 1 T. lemon extract to one portion and to the other portion  $\frac{1}{4}$  t. of extract of cloves. Other flavors and colors may be used by dividing the mixture into more portions. Pour flavored candy

into shallow tins that have been dipped in cold water. Let stand over night, turn out and cut in squares. Roll in fine granulated sugar or powdered sugar and let stand to crystallize.

## Rocky Road

Melt 1 lb. of dipping chocolate over hot water in upper part of double boiler. Then stir in 1 c. nuts and  $\frac{1}{2}$  lb. marshmallows, cut or uncut, as preferred. Mix rapidly, just enough to coat, and pour quickly into a warm, oiled platter, tipping to secure a thin, even distribution of chocolate. Break up when cold and firm.

## Pop-Corn Balls

5 qts. popped corn  $\frac{1}{4}$  c. white corn syrup  
2 c. sugar  $\frac{1}{2}$  t. vinegar  
 $\frac{1}{2}$  c. water  $\frac{1}{2}$  t. salt  
1 T. vanilla

Boil sugar, water and syrup without stirring until thermometer registers 260 degrees Fahrenheit or a good firm ball is formed in cold water. Then add remaining ingredients and let boil a few minutes longer. Have corn in a large pan and pour on gradually the syrup, using a spoon constantly to turn the corn that it may be evenly coated. Form into balls and let stand in a cold place until brittle.

## Maple Nougat

1 c. maple syrup  $\frac{1}{4}$  c. water  
1 egg white 1 t. vanilla  
 $\frac{1}{2}$  c. dark Karo  $\frac{1}{2}$  c. mixed nut meats

Cook mixture of syrups and water till a soft ball is formed when tried in cold water. Pour half of syrup over beaten egg white. Cook remainder until brittle when tried in cold water and pour into egg mixture. Add flavoring and nuts and pour into a mold. Cut or break into small pieces and wrap in bits of waxed paper.

## Chocolate Caramels

$\frac{3}{4}$  T. butter  $\frac{1}{4}$  c. milk  
2 c. molasses 3 sqs. chocolate  
1 c. brown sugar 1 t. vanilla

Put the butter into kettle and when melted add molasses, sugar and milk. Stir until sugar is dissolved and bring to boiling point. Then add chocolate and stir constantly till chocolate is melted. Boil until a firm ball may be formed in the fingers when tried in cold water. Add vanilla and nuts just after taking from fire. Pour into buttered pan, cool and mark into squares.

## Table of Abbreviations

1 c. equals 1 cup.  
1 t. equals 1 teaspoon.  
1 T. equals 1 tablespoon.  
1 g. equals 1 ounce.  
1 qt. equals 1 quart.  
1 sq. equals 1 square.  
1 lb. equals 1 pound.

All Measures Are Level.

## Propagation of Fruit Plants

(Continued from page 31)

ing the stratified seeds may be held in a cold cellar or they may be exposed to outside weather conditions. It is not desirable to transfer seeds at once to sub-zero weather, the excessive cold apparently checking the process of after-ripening which is essential for germination.

## Planting

When the seeds are removed from the stratification bed, they may be planted in rows four feet apart, but they should be seeded quite thickly in the row. Peach, plum and cherry seeds may be planted from two to four inches deep, the smaller the seed, the shallower the planting. Apple and pear seeds should be planted about one inch deep. Many nurserymen now plant peach seeds in the fall without stratification. In this case the seeds are planted at the usual depth and a small furrow or ridge two inches high is thrown over the row. This ridge is leveled off again in the spring. Other seeds, even including the cherry and apple, may be planted in a similar manner, but experience has shown that a better stand may be expected with spring planting following stratification.

## Care of the Seedlings

The seedlings usually germinate quickly and make a rapid growth. About the only essential in care is thorough cultivation, repeated at frequent intervals throughout the season.

After growth has been completed in the fall, the seedlings are usually dug by running a tree digger under them and pulling as with ordinary nursery trees. Since seedlings usually hold their leaves until late in the fall, it is customary to dig them and pile them in small bundles in trenches, where they are lightly covered with soil for a few days. This induces a sweating process which loosens the leaves so that after two to four days, when the trees are taken from the trench, the leaves may be easily removed. For winter storage, they can be tied into bundles of convenient size (usually containing 50 seedlings). The tops are cut back and the bundles are packed in the storage cellar, where the roots can be plunged in sand, rotted sawdust or other similar material. It will do no harm if, when thus packed, they are lightly frozen. From this storage cellar, they may be removed during the winter for root grafting or they may be lined out in the spring for budding.

We have now covered the general principles of fruit plant propagation. We described the methods used in the different kinds of propagation, and we have explained the sources and handling of stocks used for propagating the principal deciduous fruits. In succeeding installments, we shall consider in detail the methods used in propagating the leading kinds of fruits.

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# Profitable Poultry



By H. A. Bittenbender

## Suggestions for Winter Management of the Flock

**H**EALTH, vigor and vitality must be maintained in poultry if winter eggs are to be obtained.

If possible, construct the house so that changes in temperature will not be noticed by the birds inside of the house.

Birds that show signs of weakness should be removed. Pale and shrunken combs are good indicators of weakness. If any birds show inactivity, ruffled plumage, loss of weight or bowel discharge, it is well to remove them from the flock. Make a close examination frequently to see whether birds are gaining or losing in weight.

Every possible effort should be made to prevent birds from catching cold. Running of the nostrils is usually a forerunner to swollen eyes, roup condition, canker and diphtheria.

### It's Not Only What to Feed But How to Feed

The value of sour milk and buttermilk is often overlooked on the farm. Many times this is thrown into the slops or fed to the pigs when it might much better be given to the laying hens. It provides protein for the production of eggs and assists in maintaining the birds in a healthy condition. When the mash is mixed with milk, or when the birds receive all the milk they will drink, the meat meal may be decreased about one-third.

Alfalfa or clover leaves are valuable feeds often overlooked. When they are available, they may replace other green feeds, and they contain protein, which is an aid in supplementing the grains. They may be fed either dry or moist. If fed moist, steam the leaves rather than soak them. Place in a pail and cover with boiling water. Then drain off the water, cover the pail, and allow the leaves to steam. In cold weather, they may be fed to the birds while still warm.

The birds need a constant supply of oyster shell, grit, minerals and charcoal, readily accessible or mixed in the dry mash.

In the morning, the grain mixture is fed in a deep, dry litter. Enough is given to keep the birds busy scratching until about noon. All should be cleaned up at that time. This first feed will usually be about one ounce per bird of grain, depending upon the size of the birds and the production of the flock. Rather than measure the amount, it is best to feed according to the appetites of the birds, being careful not to feed more than is consumed.

During sudden "cold spells" in the winter that decrease or stop egg production, a wet mash, fed warm at noon, will aid in getting the birds back into laying condition. A wet mash is often used to hasten maturity and start egg production in pullets being prepared for winter laying. If wet mash is fed, do not allow uneaten portions to sour and be eaten later, as this will cause digestive disturbances.

Meat meal or tankage may be fed separately, but it is preferable to mix it with the mash and feed in a hopper so constructed that the birds will not waste the feed picking it over. Green feed is generally given at noon.

In the evening, a feed of grain is again given. This is the heaviest feed of the day and enough is given so the birds go to roost with full crops.

Some poultrymen feed more than the birds will consume, so a little remains in the litter to be worked out early the following morning. This feed will usually amount to between one and two ounces per bird.

### Points to Consider

1. Egg production depends upon two factors: (1) the inborn capacity of the hen for egg production, and (2) the conditions to which the hen is subjected.

2. The reproductive organs of the hen build the egg. The digestive organs will furnish the building materials if the hen receives the right kind of feed.

3. Uncomfortable surroundings will interfere with the activity of the sensitive reproductive organs.

4. The egg contains a high percentage of protein and ash. They are the important building materials for egg construction.

5. Common grains are very low in protein and ash.

6. Mill feeds usually contain more protein and ash than the grains.

7. Animal products are high in protein and must be fed to supplement the grains in an egg producing ration.

8. Rations vary, but nearly all successful rations are based upon the following principles:

(a) About two-thirds of the ration consists of grains fed in a litter.

(b) About one-third consists of ground feeds fed as a mash.

(c) Feeds of animal origin must be included.

(d) Mineral matter in the form of oyster shell and limestone grits is essential.

(e) Green feeds are valuable aids to production and good health. Alfalfa leaves are relished by the birds and are a valuable feed.

9. The value of milk as a feed for hens is often overlooked. It will prove a desirable addition to any laying ration.

10. The method of feeding is important. It must be adapted to the peculiarities of the flock, the feeder, and to the system of management followed.

11. Keep the mash hoppers filled with dry mash and open. Be sure that you have one part of hopper space for each 10 to 15 birds.

**A**N IMPROVED pressure tester for the determination of maturity in fruits has been developed by J. R. Magness and George F. Taylor of the Bureau of Plant Industry. The tester is described in Department Circular 350, a copy of which may be obtained on request from the United States Department of Agriculture, Washington, D. C.

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- ☐ **Under Dogs**  
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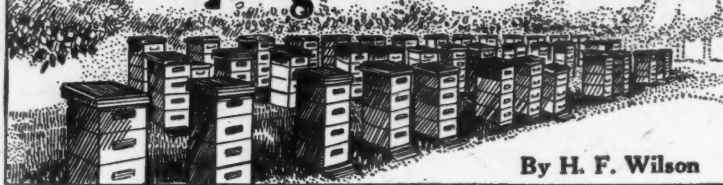
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AMERICAN FRUIT GROWER MAGAZINE  
53 West Jackson Blvd., Chicago, Ill.

## Bee Keeping for Fruit Growers



By H. F. Wilson

### Honey—Its Composition, Important Uses and Food Values

MANY of our beekeepers have a fair idea of the physical properties of honey and can determine by taste the kinds of honey which are to be found in their particular localities. They may also have a slight idea of the chemical composition of honey, and they may be able to give a definition for honey. Also, the wives of some beekeepers have an idea as to the use of honey in cooking, but a more thorough knowledge of honey, its composition and food value will aid a great deal in helping to acquaint the public with the desirability of having honey as a part of the regular diet. According to the dictionary, honey is "a sweet viscid fluid collected from the nectaries of flowers and elaborated for food by several kinds of insects, especially the honey bee."

#### Source of the Nectar

As to the source of the nectar itself, it is a secretion from plants most commonly found in flowers in a special receptacle called a nectary. In the growth of the plant, it gathers up food substances from the earth and, changing them into various forms, distributes them from one part of the plant to another as they may be needed. One of the products of this process is starch, which is in turn changed into sugars, part of which is given off through the nectaries. The purpose of this sweet fluid in nature is apparently to draw insects to the plants in order that they may carry the pollen from one blossom to another.

This nectar is collected in the honey sack of the bee and carried to the colony, where it is worked over by the bee into honey. The nectar is a thin, sweet liquid which becomes greatly changed during and after elaboration by the bee, becoming a thick liquid substance which may in turn become a crystallized semi-solid. Because of this latter condition, many people have an idea that crystals in honey indicate that the product is badly adulterated with sugar. However, this is entirely wrong, as the crystallization of honey is one of the surest signs of its purity.

#### Flavor Determined by Plant Furnishing the Nectar

Practically every honey has a particular flavor of its own, derived from the plant from which it is taken as nectar. It may be almost as clear as water, or it may shade through the yellow colors into brown and even to brown-black colored honey, which comes from the buckwheat plant. The color of honey is not necessarily an indication of its flavor, although darker honeys are not so likely to be as delicately flavored as lighter colored honeys.

Honey is one of the so-called carbohydrate foods, being composed of several kinds of sugars in water and containing very small amounts of many minerals. American honey contains from approximately 13 to 26 per cent of water, from 62 to 83 per cent of invert sugar, from one to 10 per cent of sucrose, and about one per cent of ash. It also contains from one to seven per cent of dextrin and from one to seven per cent of total undetermined materials.

The different amounts of water present in honey are due to the degree of evaporation in the hive. When honey is not thoroughly ripened and

a high per cent of moisture is removed by the bees, it is very likely to ferment and become sour honey. Very frequently beekeepers, in their desire to remove the crop from the hive, extract it before it is well ripened and sealed over. As a result, the fermentation germs which thrive in weak sugar solutions begin to work and soon spoil the honey for table use.

#### Keep Honey in Warm, Dry Place

Honey is very peculiar in that it will absorb moisture, and when left to stand in a cold, damp room, even though thoroughly ripened, it may absorb sufficient moisture to cause a dilution in which acid bacteria can work. Both comb honey and extracted honey should always be kept in a warm, dry place and never in a refrigerator or a cold, damp basement.

In the public market honey is sold regularly on the basis of color. There has recently been established by the United States Department of Agriculture a set of standard grades which will cover all colors of honey produced in the United States. Water white, white and light amber are the honeys of the highest grades, and these uniformly bring better prices than do the darker honeys, except in the case of a special demand for darker colored honeys, as, for example, buckwheat honey, which is one of the darkest colored honeys known.

#### Honey Easily Digested

An important virtue of honey which is not known by the general public is the ease with which it is assimilated by the human body. Granulated sugar and similar products tend to irritate the linings of the digestive tract, which, in the case of some people, may be quite serious. On the other hand, honey seldom, if ever, causes these troubles because of the ease with which it is digested and because it can be entirely taken up by the digestive organs. Honey and sugar, although comparable in sweetness and to a large extent in relative heat value, are widely different in other ways. Granulated sugar contains nothing else but sugar. It contains no mineral matters, vitamins or other food products, while honey contains numerous substances, including vitamins. It is true that these are present in only very small quantities, yet they help in the general health of the body.

#### Uses of Honey

Honey is said to be the oldest sweet known. It was used centuries before sugar became known, and was then practically the only sweet substance in common use. Honey is used extensively in medicine and cooking, and recently it has developed that it is an excellent sweetening material to be used in the raw state in various kinds of fancy dishes.

One of the mistakes made by beekeepers is in advising inexperienced people to use honey in baking. Honey cannot be used in place of sugar in the same proportions, and it takes a very experienced cook to produce fluffy cookies and cakes with honey. One very important fact about the use of honey in baking, however, is that cakes and cookies made with honey, while usually very hard just after being baked, will, when exposed to the air, become softer and more fluffy, which is not the case when sugar is used. It is not likely that

very many people will wish to keep goods baked with honey on hand for seven or eight months, or even a year, but, in case they do, they will be very much surprised at the delicious products secured. The levulose in cookies and cakes causes them to gradually become moist and more or less fluffy.

It is not generally known, but honey is a splendid antiseptic for wounds, and especially burns. In the case of a bad scald, honey rubbed onto the injured parts will not only serve as an antiseptic, but it will also produce beneficial healing results.

### Notice

Statement of the Ownership, Management, Circulation, Etc., Required by the Act of Congress of August 24, 1912.

of American Fruit Grower Magazine, published monthly at Chicago, for Oct. 1, 1923. State of Illinois, County of Cook, ss.—Before me, a notary public in and for the state and county aforesaid, personally appeared Harry W. Walker, who, having been duly sworn according to law, deposes and says that he is the business manager of the American Fruit Grower Magazine, and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 411, Postal Laws and Regulations, printed on the reverse of this form, to-wit:

1. That the names and addresses of the publisher, editor, managing editor and business manager are:

Publisher—Magazines, Inc., 53 W. Jackson Blvd., Chicago, Ill.

Editor—None.

Managing Editor—C. E. Durst, 53 W. Jackson Blvd., Chicago, Ill.

Business Manager—Harry W. Walker, 53 W. Jackson Blvd., Chicago, Ill.

2. That the owner is: (If the publication is owned by an individual his name and address, or if owned by more than one individual the name and address of each, should be given below; if the publication is owned by a corporation the name of the corporation and the names and addresses of the stockholders owning or holding 1 per cent or more of the total amount of stock should be given.)—C. A. Turner, J. A. Sisley, H. W. Walker, J. E. Montgomery (all at 53 W. Jackson Blvd., Chicago, Ill.); C. W. Price, 15 Park Row, New York City; E. G. K. Meister, 501 The Arcade, Cleveland, O.

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HARRY W. WALKER,  
Business Manager.

Sworn to and subscribed before me this 8th day of October, 1925.

(Seal) A. C. BAMBERGER,  
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